OVERVIEW OF FUNCTIONS

diwoBlood

Digital Workflow for Blood Donation

Innoopract

Welcome at diwoBlood

DiwoBlood is a comprehensive solution for the digitalization of the blood donation process.

With easy to use apps diwoBlood provides support for doctors, medical staff, and donors in the blood donation workflow - starting with the registration, through anamnesis right up to the documentation of incidents during the puncture.

The apps for anamnesis and consultation with the doctor are used within E-ConsentPro mobile, a product of the Thieme Compliance and are therefore clinically proven. Also, these apps have been optimized for the blood donation process in cooperation with the Blood Donor Service of the Bavarian Red Cross (Germany).

On the following pages, we will give you an overview of the functionality of diwoBlood.

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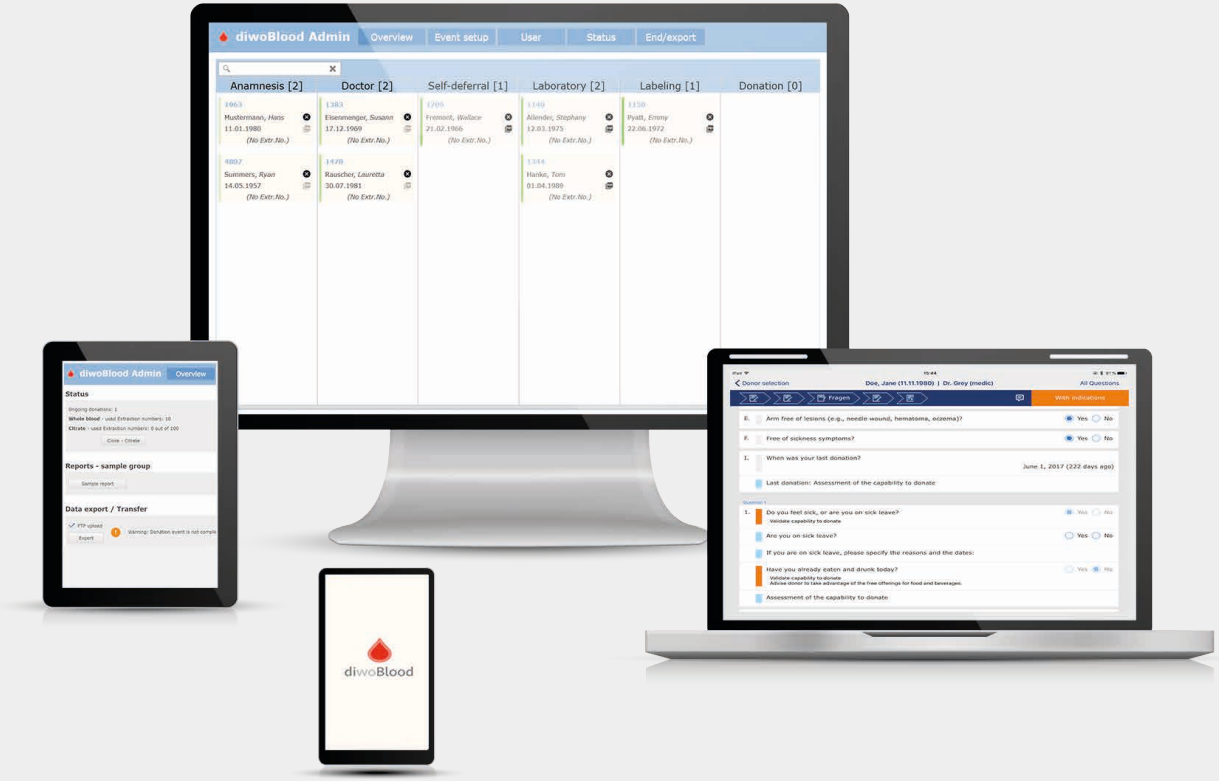

diwoBlood Admin
Overview
Event setup
User
Status
End/export
Anamnesis [2]
Doctor [2]
Self-deferral [1]
Laboratory [2]
Labeling [1]
Donation [0]
Mustermann, Hans
11.01.1980
(No Extr.No.)
Eisenmenger, Susann
17.12.1969
(No Extr.No.)
Fremont, Wallace
21.02.1966
(No Extr.No.)
Allender, Stephany
12.03.1975
(No Extr.No.)
Pyatt, Emmy
22.06.1972
(No Extr.No.)
Summers, Ryan
14.05.1957
(No Extr.No.)
Rauscher, Lauretta
30.07.1981
(No Extr.No.)
Hanke, Toni
01.04.1989
(No Extr.No.)
diwoBlood Admin
Overview
Status
Reports - sample group
Data export / Transfer
Donor selection
Doe, Jane (11.11.1980) | Dr. Grey (medic)
All Questions
Fragen
With indications
E. Arm free of lesions (e.g., needle wound, hematoma, eczema)?
F. Free of sickness symptoms?
I. When was your last donation?
June 1, 2017 (222 days ago)
Last donation: Assessment of the capability to donate
1. Do you feel sick, or are you on sick leave?
Are you on sick leave?
If you are on sick leave, please specify the reasons and the dates:
Have you already eaten and drunk today?
Assessment of the capability to donate
diwoBlood

System overview

DiwoBlood is the standard software for an entirely digital blood donation workflow. Due to its modularity, the use of workflows and the rule-based processing of data, diwoBlood can easily be customized to the needs of any blood donor service.

DiwoBlood focuses consistently on the digital collection of data through easy to use mobile apps and web applications running on standard tablet computers (iOS/Android) and notebooks/desktop computers (Windows/Linux). The system runs both with and without a connection to a remote blood management solution. A local wireless network is sufficient to connect the devices, and the server part can run on simple notebooks.

The required data security is guaranteed through consistent and strong encryption during communication and at persistence-level. Since diwoBlood does not store personal data on the mobile devices, there is no risk to data security even when a device goes missing. High availability is ensured through redundancy in hardware, software, and data using a warm standby configuration.

The system supports standard interfaces such as the read write access to the blood management solution EdgeBlood™ or the RFID-donation card of the German Red Cross. All relevant information for the documentation of the donation, including the signatures of the donor and the doctor, is collected and stored using the PDF/A format. To guarantee the integrity of the data, the document is additionally encrypted and digitally signed.

diwoBlood:

- reduces mistakes and omissions in the anamnesis and the medical evaluation
- cuts down the post-production effort
- minimizes the blood product waste.

The version of diwoBlood serving as an example in this brochure has been developed in cooperation with the Blood Donor Service of the Bavarian Red Cross.

Blood donation workflow

Donor, doctor and medical staff:

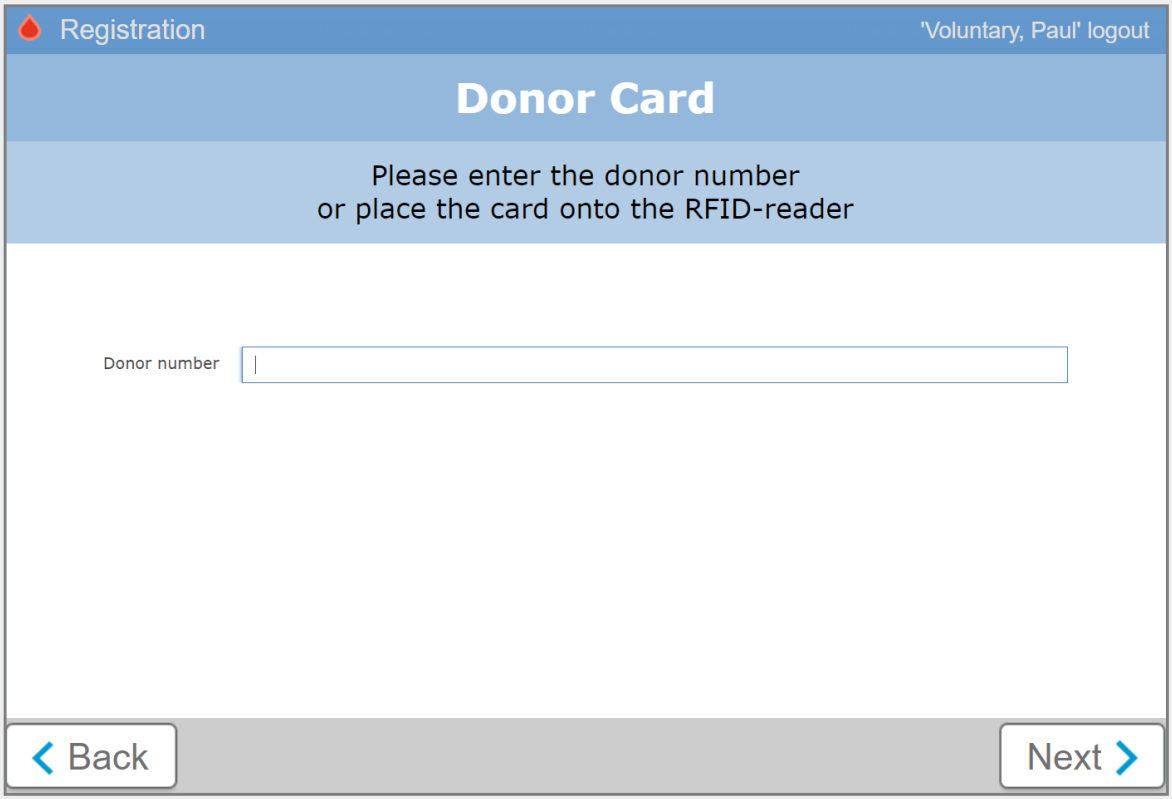
1. Registration
2. Mobile anamnesis with diwoBlood
3. Medical examination
4. Confidential self-deferral
5. Laboratory
6. Labeling
7. Evaluation of the blood donation

Administration:

- Donation event (setup and start)
- Tabular overview
- Conclusion: Reporting and data export (PDF and XML)

1. Registration

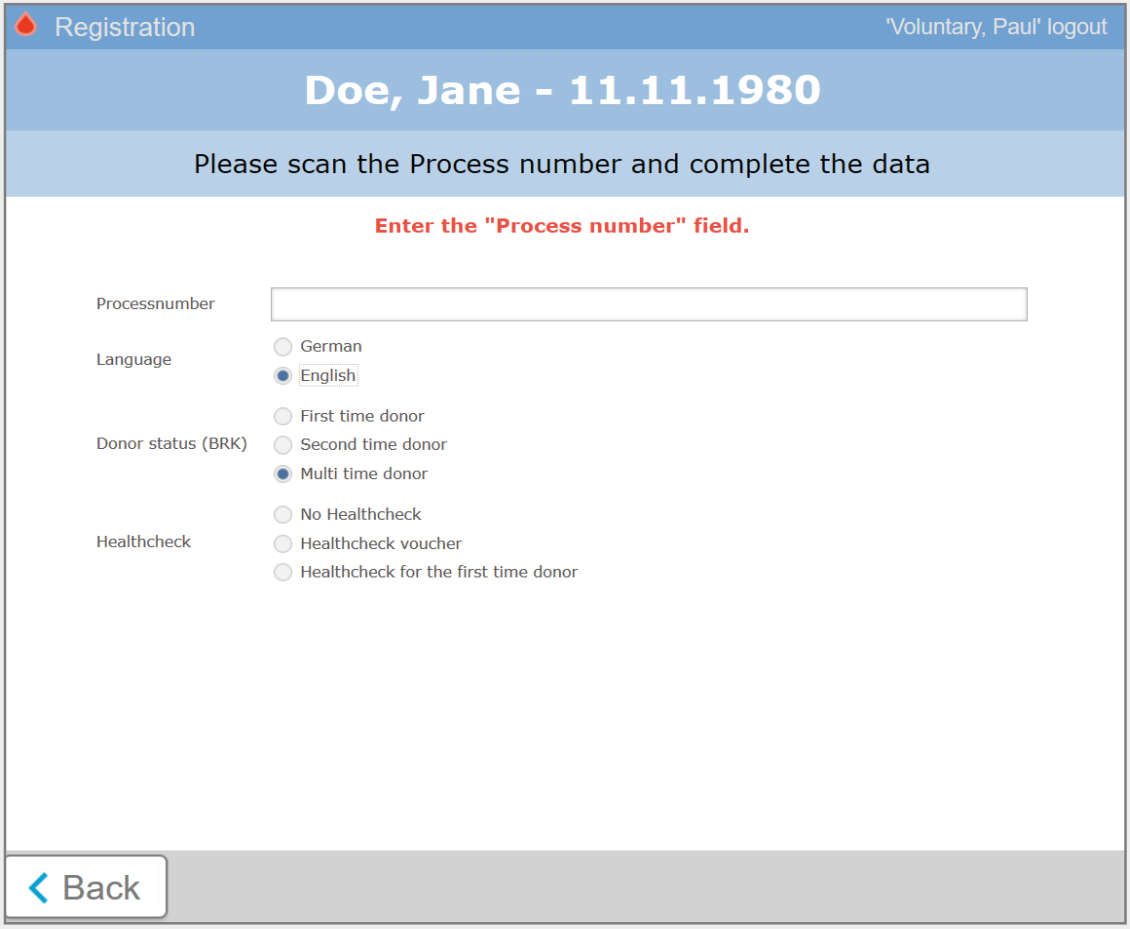
At the registration station, donors are enrolled. DiwoBlood offers three options for the data input: either the data is imported from the RFID-donation card, retrieved from a donor information management system (e.g., EdgeBlood™) or entered manually.



Registration

Each donor is given a wristband with a QR code containing his personal process number. This number is used at every following station of the blood donation workflow to identify the donor.

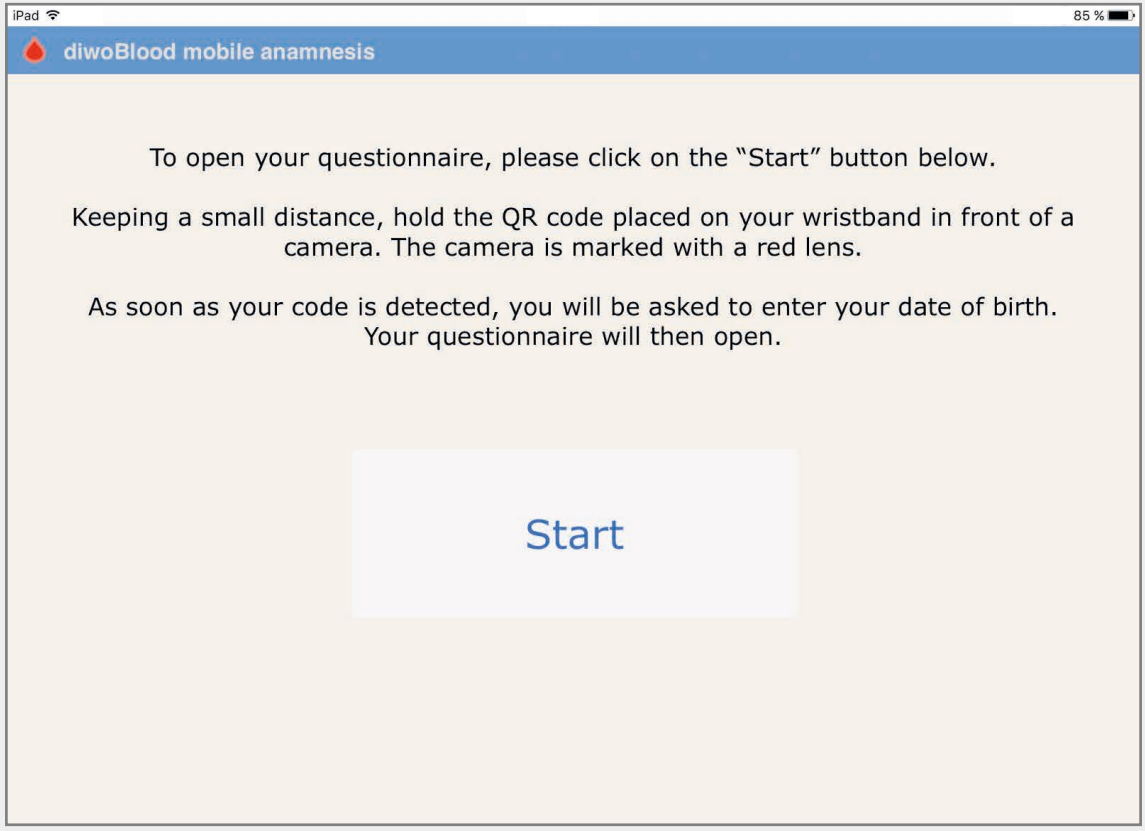
At the registration station, the personal process number is linked to the donor by scanning his QR code (using a camera or a laser scanner). The donor status and the native language of a donor can also be modified at this station.



2. Mobile anamnesis with diwoBlood

At the diwoBlood anamnesis station, the donor fills in the anamnesis questionnaire using a tablet computer. By scanning his personal process number QR code, the donor logs into the app and validates his identity by entering his date of birth.

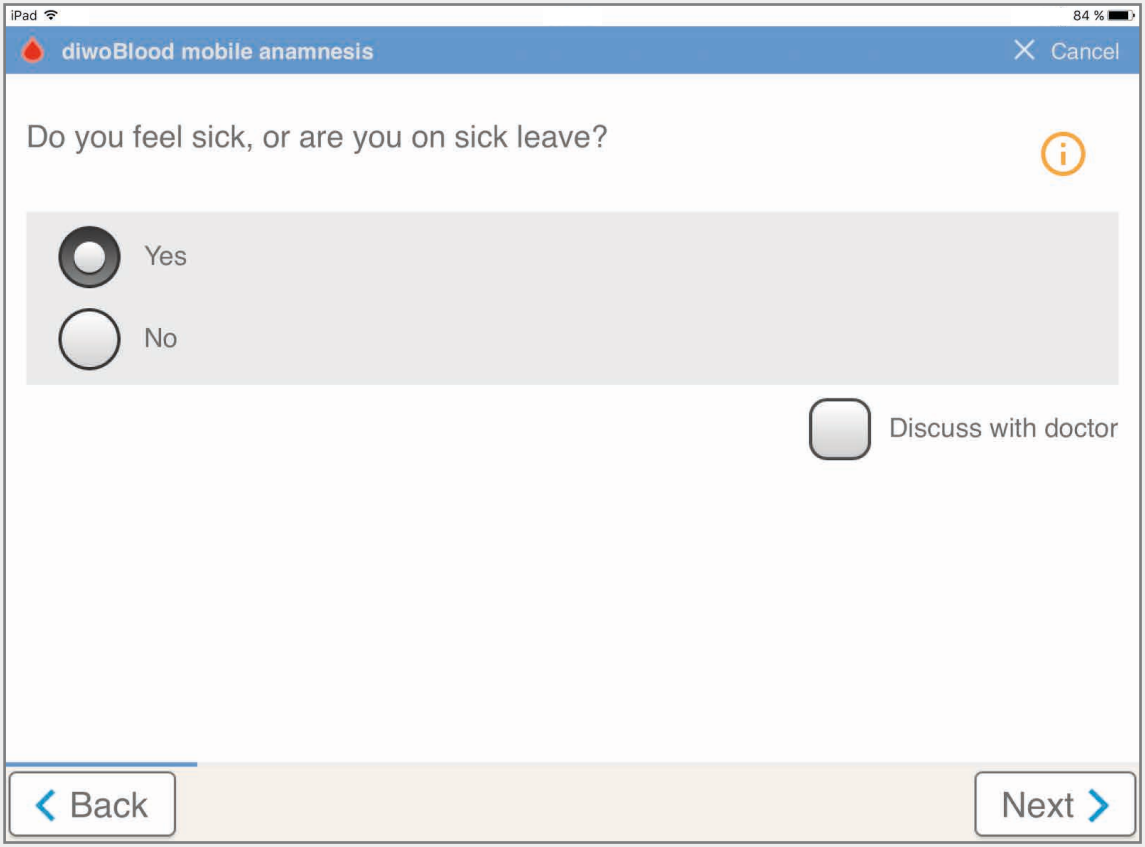
Before starting the actual questionnaire, the donor has to read and acknowledge the information sheet and to enter some additional data, like his body weight and height. The anamnesis questionnaire consists of four thematic blocks.



Mobile anamnesis with diwoBlood

The anamnesis questionnaire is based on the standardized questionnaire for blood and plasma donors provided by the German Federal Institute for Vaccines and Biomedicines but can be easily customized to meet the requirements of other countries. The screens of the questionnaire are kept deliberately simple, but in the background diwoBlood dynamically generates relevant follow-up questions. Male donors, for example, will not be asked any questions regarding pregnancy. All questions are stored on an external server and can be adjusted quickly on request.

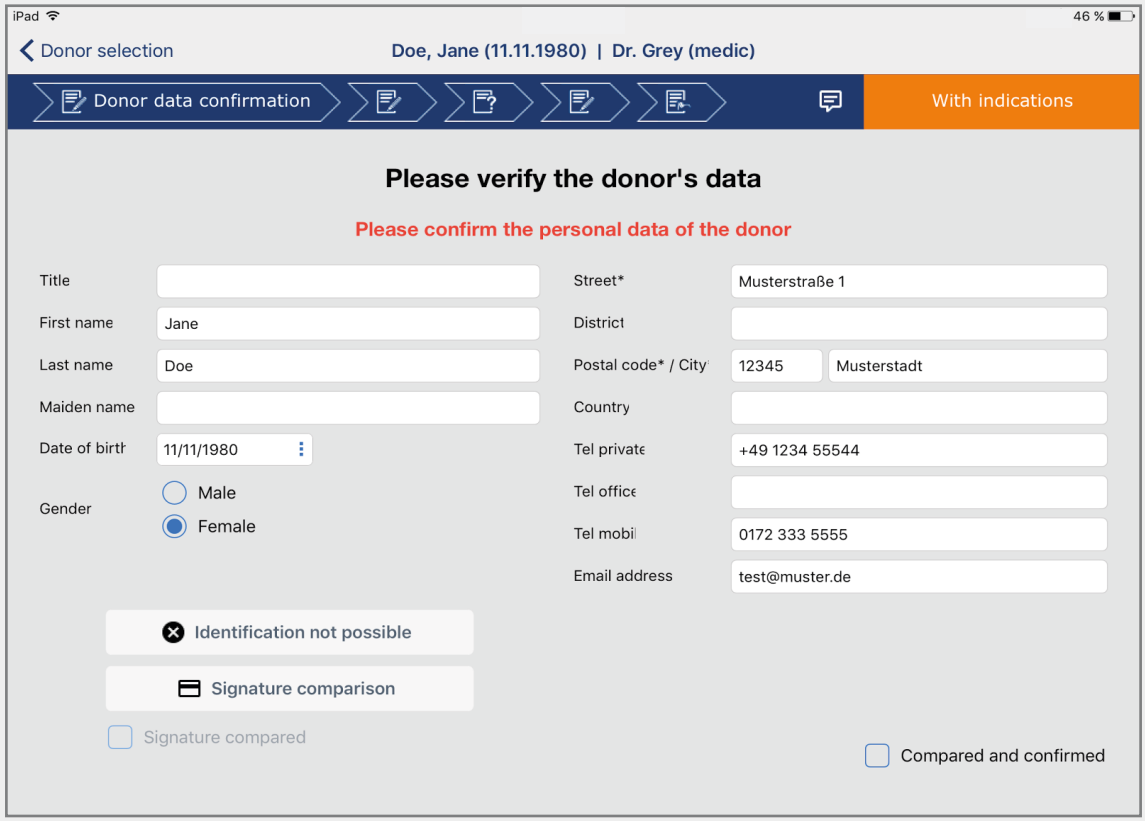
DiwoBlood leads the donor through the blood donation process - at the end of every station, the donor is instructed on what to do next.



3. Medical examination

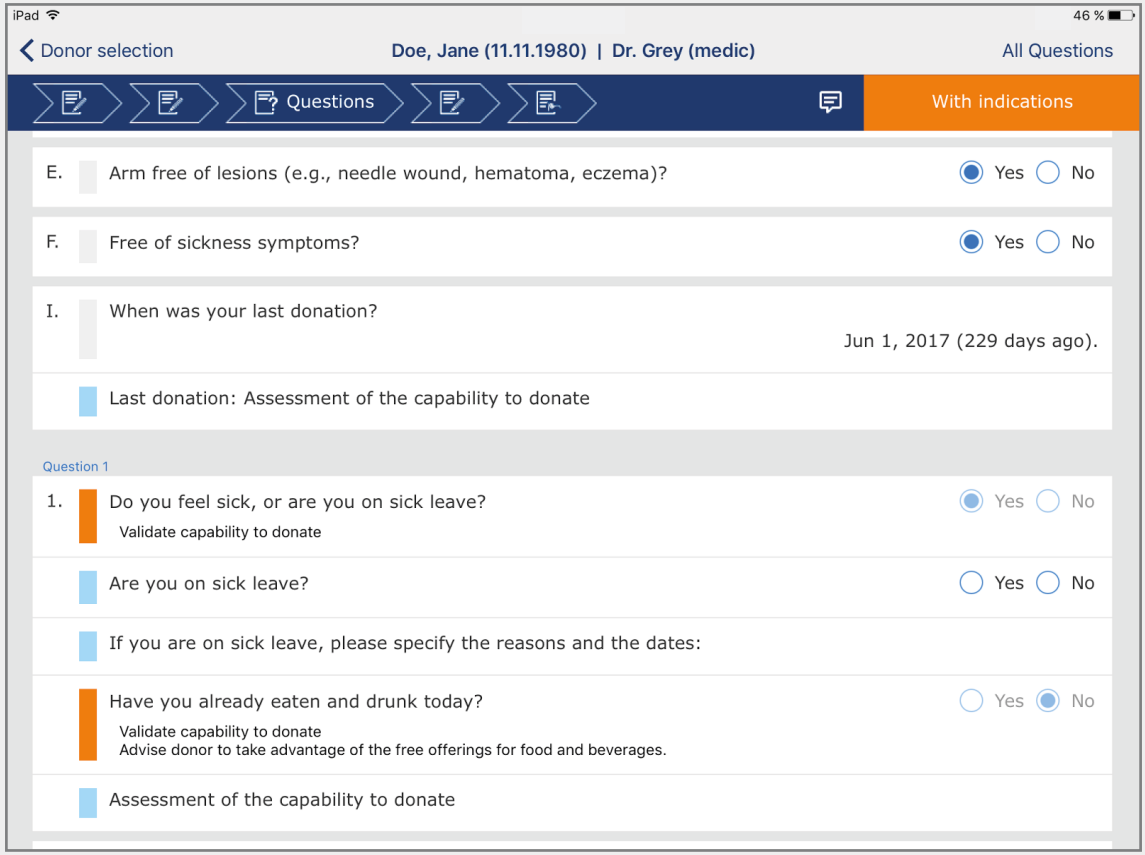
DiwoBlood supports the doctor during the medical examination and the consultation with the donor. The doctor can confirm the donor's data, clarify open questions and inform the donor about the blood donation step by step.
DiwoBlood also makes it possible to compare signatures. Additionally, the doctor gets information from external systems like EdgeBlood™ about former blood donations of a donor.

For login into diwoBlood, the doctor needs to scan his login token. The donor is identified by scanning the QR code on his wristband.



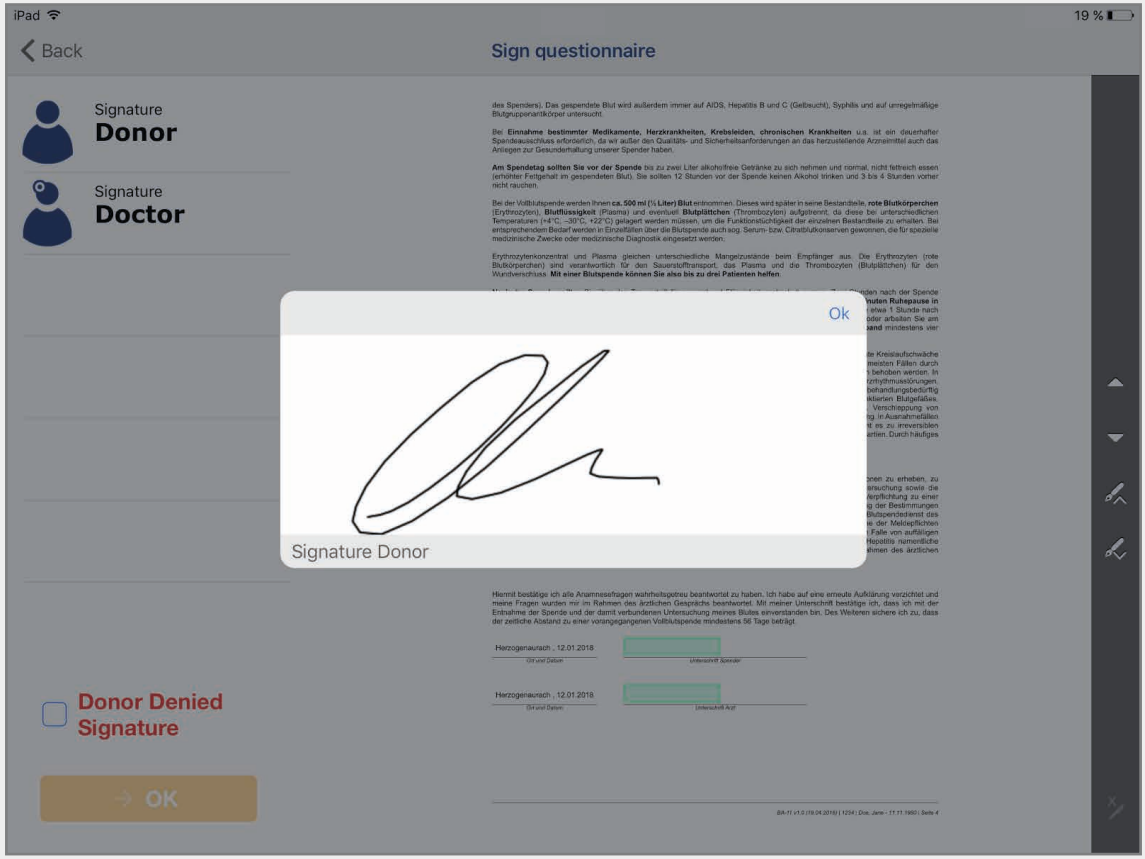
Medical examination

During the evaluation of the anamnesis questionnaire, the doctor and the donor can discuss the previously given answers. Questions that need special attention, either of the doctor's or the donor's point of view, are displayed in different colors in diwoBlood. The system evaluates every single question.



Medical examination

At the end of the consultation, the doctor confirms the donor's suitability for blood donation as well as the correctness and completeness of the personal data. DiwoBlood then generates a PDF document which can be digitally signed subsequently by the donor and the doctor.



4. Confidential self-deferral

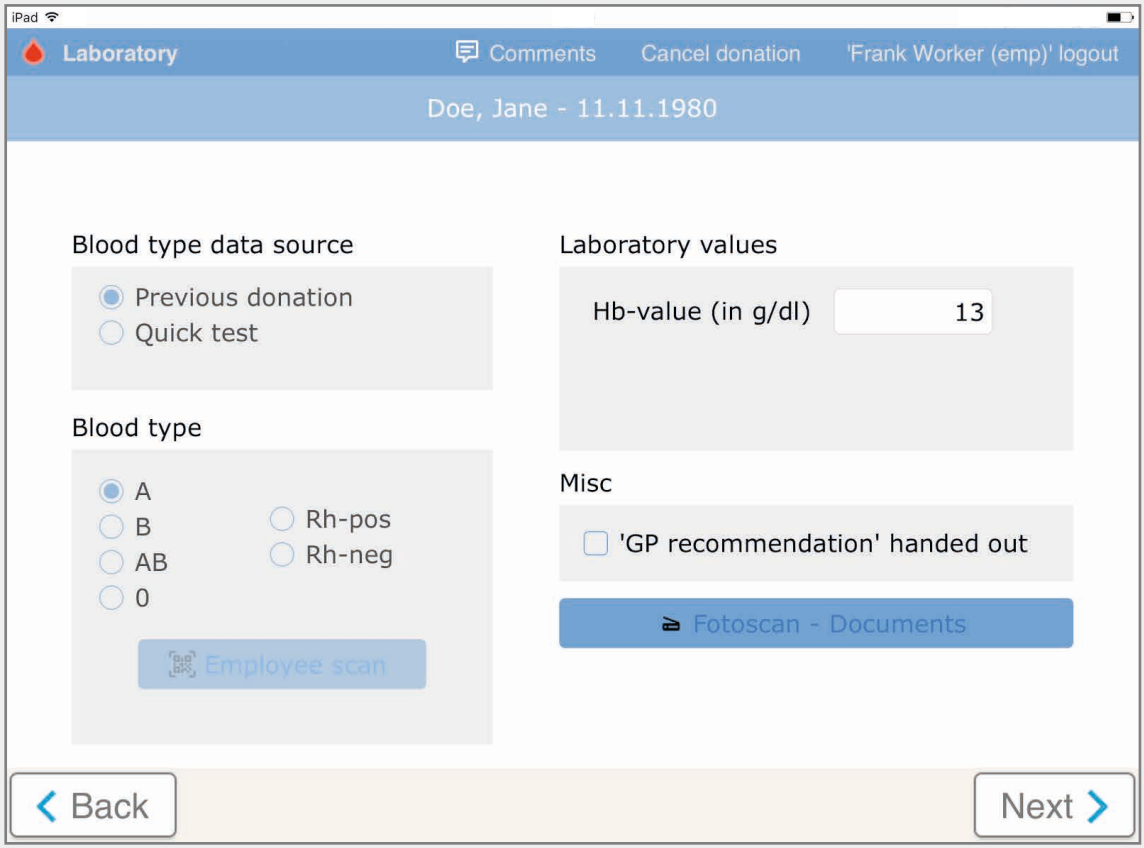
At the confidential self-deferral station the donor gets the possibility to exclude his blood donation from further use. Like with a paper form, the donor fills out the confidential self-deferral anonymously and out of sight of other persons.

After login into the app, the donor receives detailed information about possible reasons for the exclusion of his blood donation.

5. Laboratory

At the laboratory station the medical staff measures the Hb-value and, if necessary, can determine the blood group of a donor.

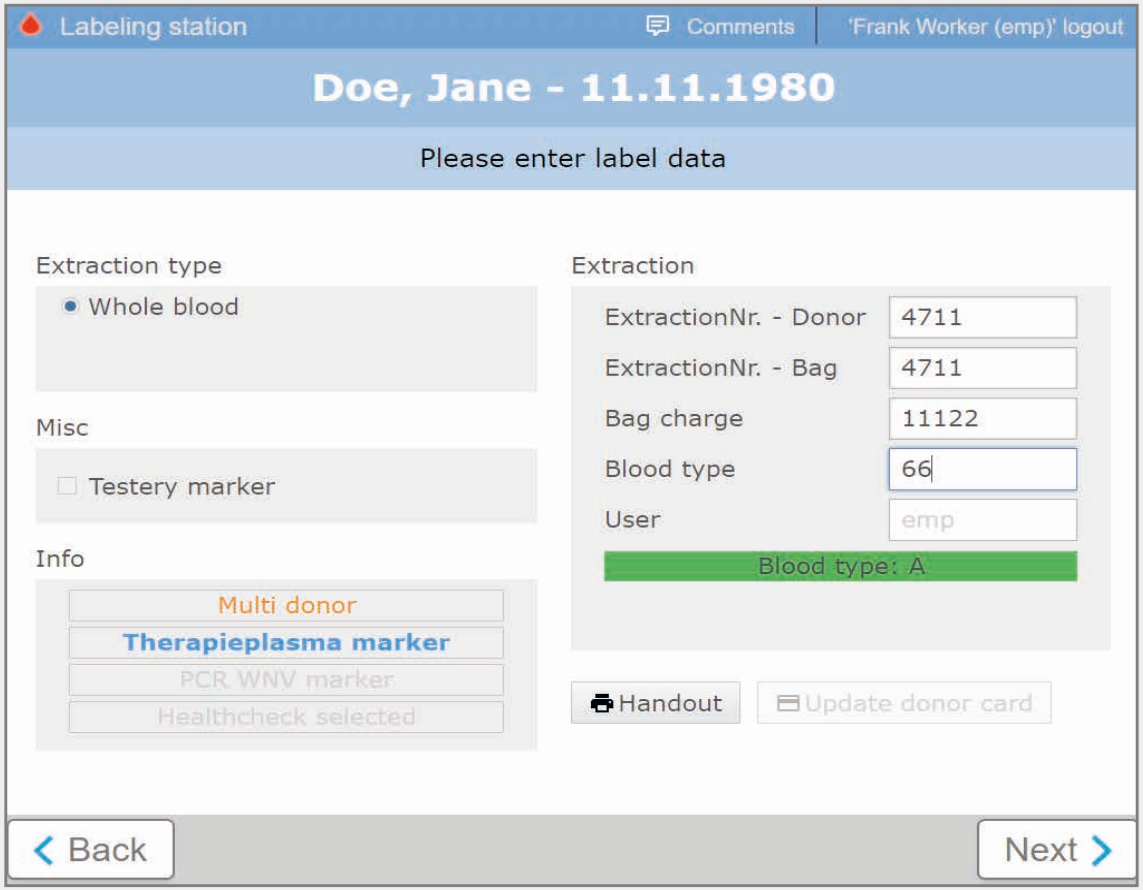
With diwoBlood, it is also possible to scan documents like the proof of the blood group of a donor from external sources, by simply using a photo scanner. In some cases, the staff member also needs to confirm that the information entered is correct, by simply scanning the QR code on his employee identity card.



6. Labeling

At the labeling station, a staff member puts preprinted labels on the blood bag and the blood tubes. He scans these labels to link the number on the blood bag with the blood donation process number of the donor. If there is a mismatch, diwoBlood shows an error message.

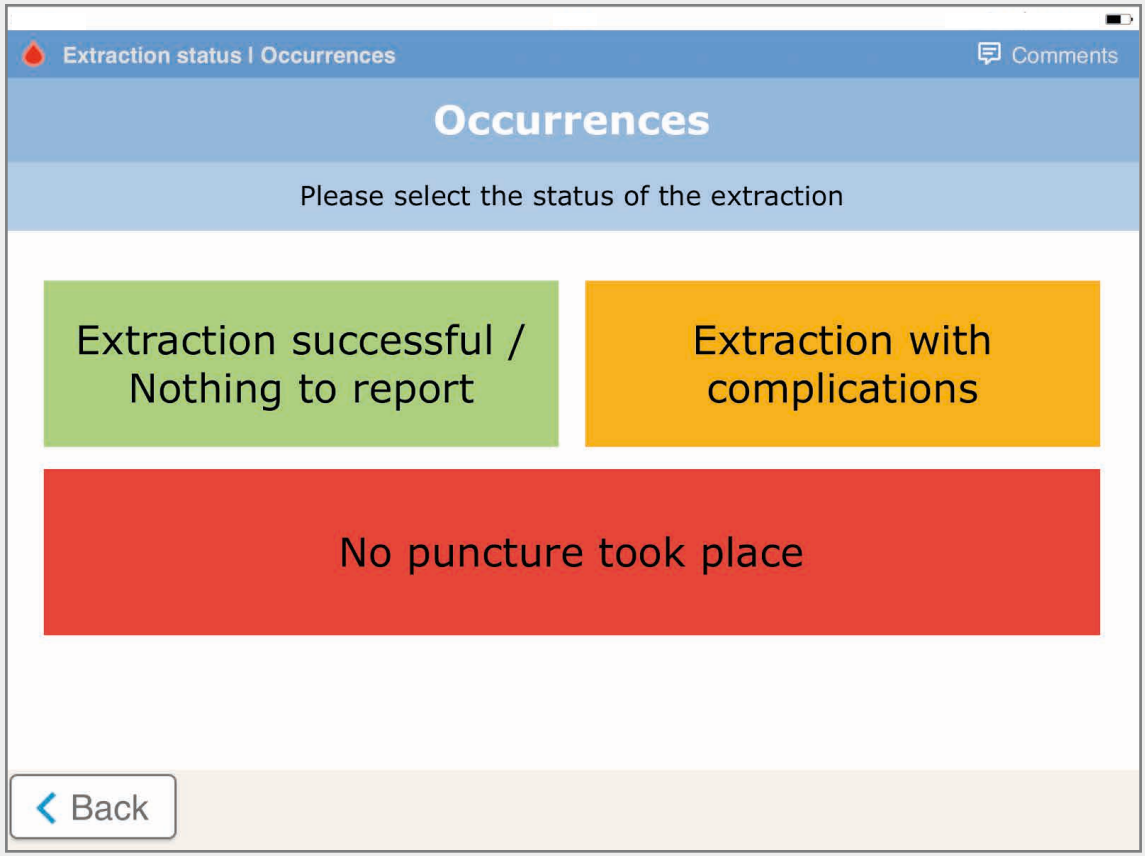
Before leaving the labeling station, the donor is given a printed handout containing his name and the most important information. With this handout, the donor goes to the puncture station.



7. Evaluation of the blood donation

Possible incidents during the puncture can be documented easily in diwoBlood. The donation is identified by the QR code on the donor's wristband or the number on the blood bag. The donor and the staff members log into the app by scanning their individual QR code.

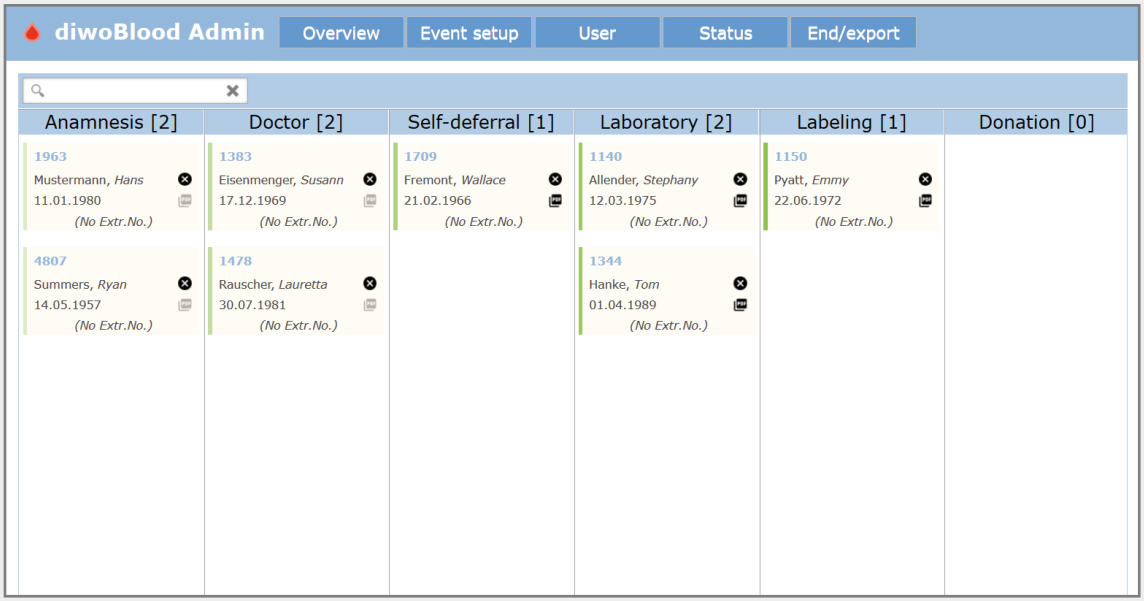
The status of the puncture can now be selected. The different options are color coded for a fast selection.



diwoBlood administration

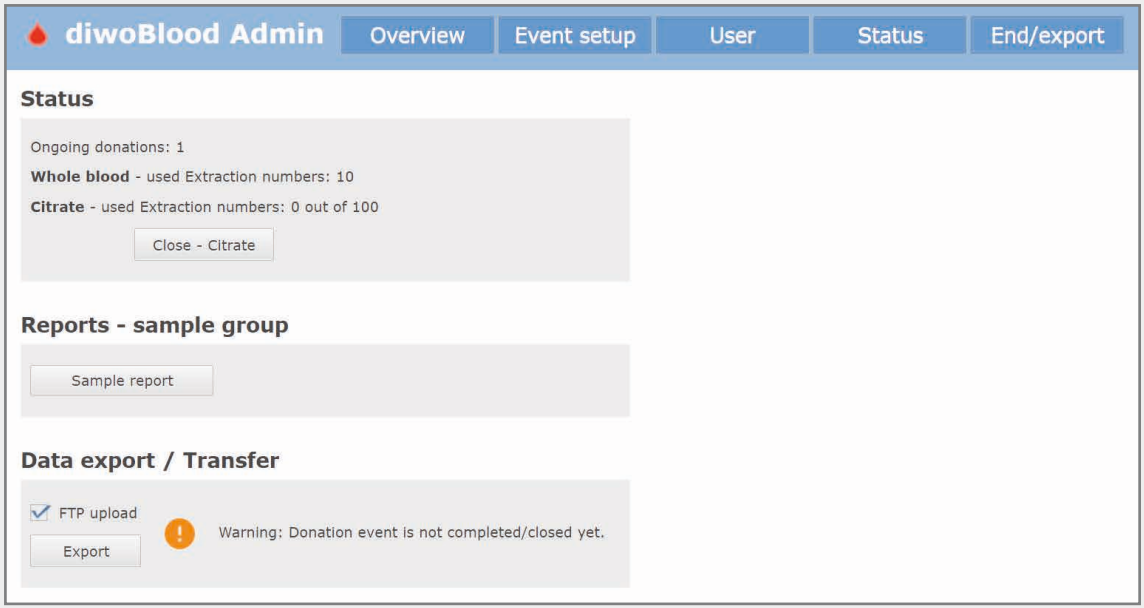
In the diwoBlood administration, blood donation events are initialized. The possible types of blood donations, the number of expected donors and any additional information can be entered.

For a better summary of the event's status, diwoBlood generates a tabular overview. All donations are grouped in columns, whereby each column represents one workflow station.



diwoBlood administration

At the end of an event, there is the possibility to view the final status of the blood donation process. The whole data of a given event can be exported in a structured XML format and as PDF files for further electronic processing.



diwoBlood

- Optimized processes due to a digital workflow:
  - digital anamnesis
  - electronic signing
  - generating PDF/A documents for archiving
- Standard product with the possibility of customizing the following aspects:
  - interfaces to external systems
  - special features within the process/workflow
  - additional forms
  - colors, texts, and logos
- based on the clinically proven software E-ConsentPro (Thieme Compliance)
- designed in cooperation with the Blood Donor Service of the Bavarian Red Cross
- modern software modules: web applications and apps (Java, Tomcat, Tabris)
- apps for iOS and Android
- data security (encryption) and reliability (system redundancy and replication of data)
- Planned extensions:
  - compact/customized workflow for the internal blood collection (e.g., in a hospital or institute)
  - multi-language capability for non-German-speaking countries

EdgeBlood™ is a trademark or registered trademark of Haemonetics Corporation in the United States, other countries, or both.

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