

Implementation of a telemetric smartphone application for improved surveillance of hemophilia home treatment

A. Rösch, D. Schmoltdt (Philipps-Universität Marburg, Germany)

W. Mondorf (Haemostas, Frankfurt, Germany), H. Pollmann (ITH, Münster, Germany)

Background

Documentation of hemophilia home treatment is usually done by analysis of paper based substitution calendars. Transferring the written entries into a database is time consuming and bears the possibility of errors. Bleeding or treatment problems are often identified months later than they occur following regular patient consultations.

In contrast, telemetric tools allow real-time surveillance of treatment and bleeding episodes as well as automated online analysis of these data.

Method

An electronic handheld, Haemoassist™ was tested within a cohort of approximately 100 patients during the last 5 years. Based on these experiences, a smartphone application was developed based on one of the leading smartphone operating systems (Google's Android). It consists of three components:

- 1 - Patient's App
- 2 - Medical Centre's App
- 3 - Medical Centre's Website

Summary

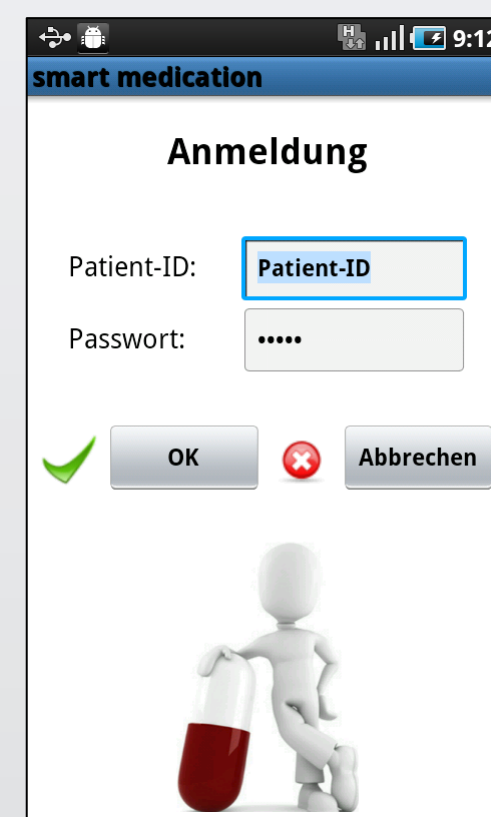
We hereby introduce a smartphone application for documentation of treatment and bleeding episodes and easy medication management. Online surveillance in hemophilia home care will allow early identification of current treatment and bleeding problems as well as the development possible target joints.

1 - Patient's App

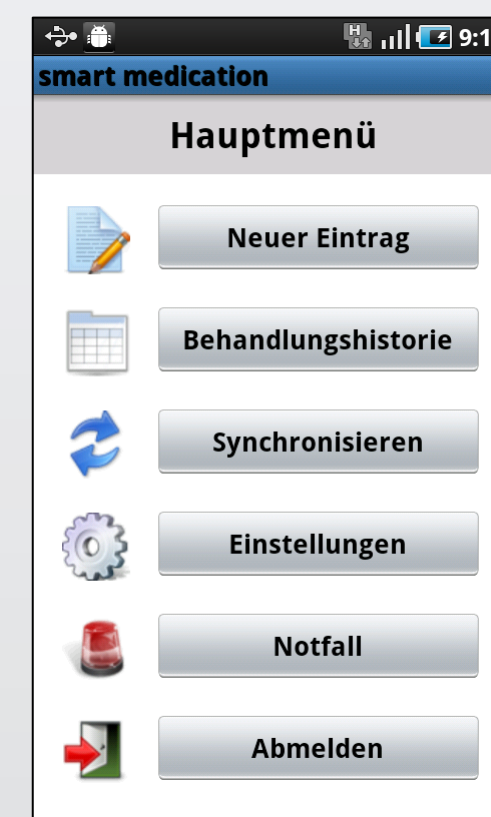
A patient based smartphone for patient entry of treatment and bleeding data. It can also be used as emergency phone and for sending written messages or photographs. Unusual bleeding or treatment patterns generate immediate alert messages to the hemophilia center.



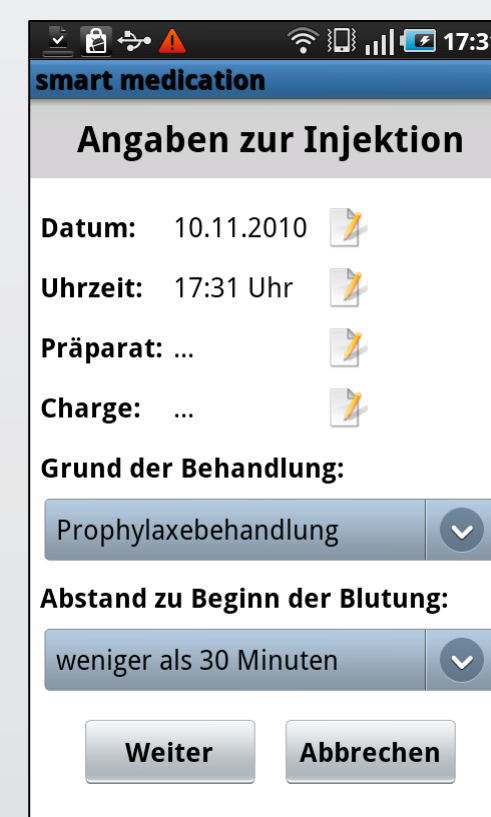
Splash Screen



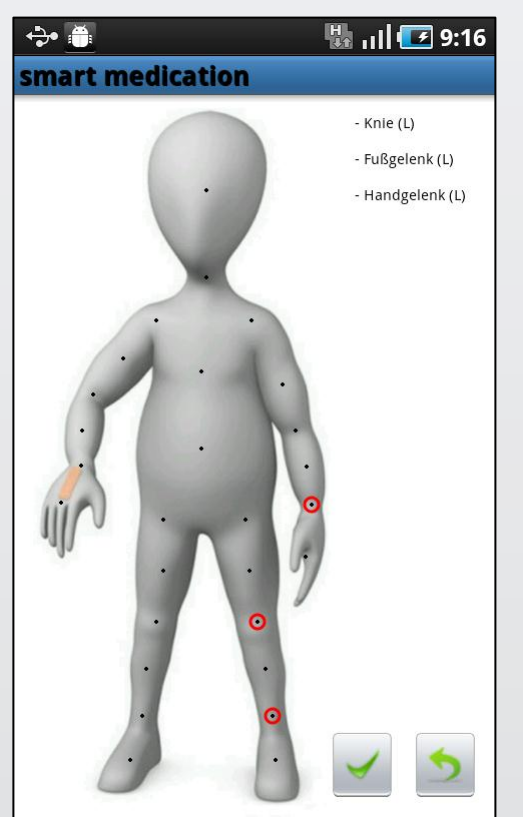
Patient Login



Main Navigation menu



Patient Treatment Form



Bleeding Location



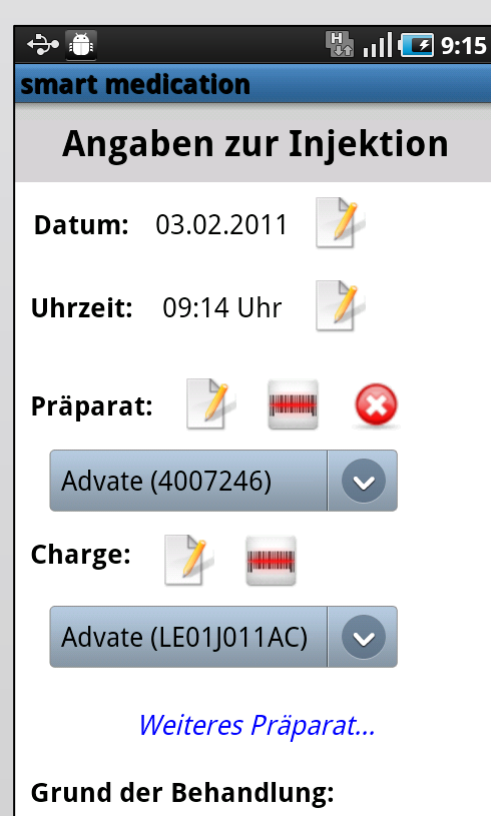
Medication Inventory



Barcode Scan (PZN)



Bleeding Documentation



Injection Documentaion



Documentation History

2 - Medical Centre's App

A smartphone at the hemophilia center for easy medication management. Concentrates given to the patient are assigned to the patient's electronic file allowing early identification of out-of-stock or non-documentation problems.

3 - Medical Centre's Website

A website at the hemophilia center for rapid and online surveillance of treatment data, bleeding episodes and medication management. Own data can be compared to pooled data of all other centers for benchmarking purpose. Long term data collections enable identification of possible target joints at an early stage.

Patient	Beh. Art	Tage seit letztem Eintrag	Ausgabe	Verbrauch insgesamt	Verbrauch Blutung + Folge	Aut. M. Wert
1001	P	184	62.000	28.900	25.000	33
1002	OD	22	20.000	8.000	8.000	12
1003	OD	30	5.000	4.000	4.000	1
1004	P	40	90.000	5.000	0	85
1005	P	2	60.000	40.000	20.000	20
1006	OD	41	8.000	2.000	2.000	6

Patient	Datum, Uhrzeit	Präparat	PZN	Charge	Dosis (Anz.)	Blutungsgrund
1001	15.04.2011, 09:40	Pfizer/ReFacto	2955938	E64482	1000 I.E.	Prophylaxe
1001	24.03.2011, 15:59	Pfizer/ReFacto	2955938	E64482	7000 I.E. (7)	Ausgabe
1001	24.12.2010, 16:04	Pfizer/ReFacto	2955938	E64482	1000 I.E.	Blutungsbehandlung
1001	23.10.2010, 12:12	Baxter/Advate	-4007246	LE01J011AC	2000 I.E.	Folgebehandlung
1001	22.10.2010, 10:15	Pfizer/ReFacto	2955938	E64482	5000 I.E.	Blutungsbehandlung
1001	21.10.2010, 13:03	Baxter/Advate	-4007246	LE01J011AC	20000 I.E. (20)	Ausgabe
1001	11.10.2010, 19:48	Baxter/Advate	-4007246	LE01J011AC	2000 I.E.	Prophylaxe
1001	08.10.2010, 12:00	Baxter/Advate	-4007246	LE01J011AC	10000 I.E. (10)	Ausgabe
1001	03.10.2010, 08:30	Baxter/Advate	-4007246	LE01J011AC	500 I.E.	Prophylaxe
1001	17.09.2010, 21:20	Baxter/Advate	-4007246	LE01J011AC	500 I.E.	Prophylaxe
1001	15.09.2010, 20:10	Baxter/Advate	-4007246	LE01J011AC	500 I.E.	Prophylaxe
1001	13.09.2010, 16:11	Baxter/Advate	-4007246	LE01J011AC	2000 I.E.	Folgebehandlung
1001	02.09.2010, 06:30	Baxter/Advate	-4007246	LE01J011AC	5000 I.E.	Blutungsbehandlung
1001	01.09.2010, 09:42	Baxter/Advate	-4007246	LE01J011AC	10000 I.E. (10)	Ausgabe

eMail Contact

aroesch@smart-medication.de