

# *Medical ID Card*

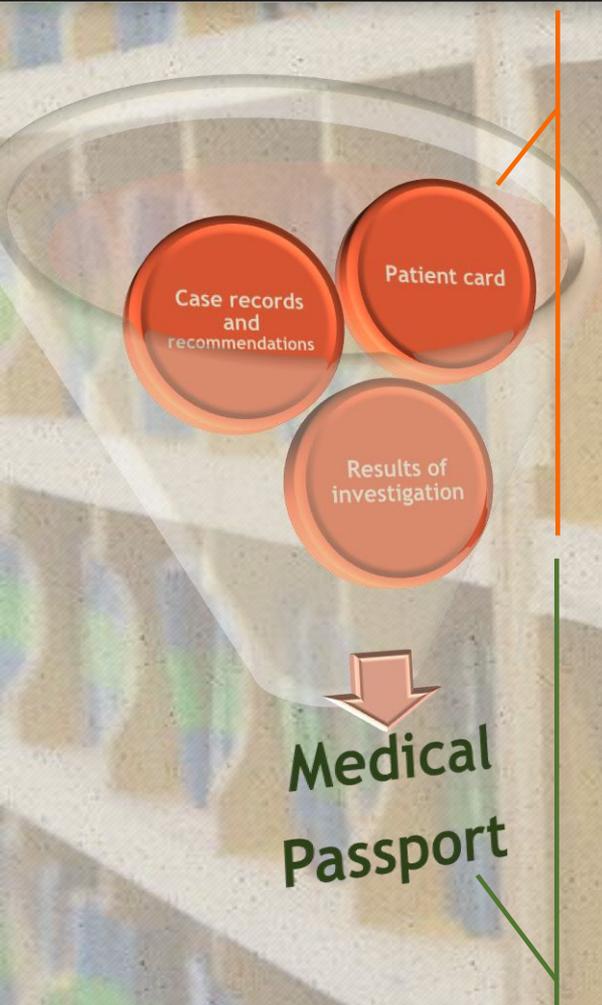
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*Medical Passport is a contactless electronic data carrier, which allows keeping and reading recorded information. The information may be saved and read using the reader/recorder and the special computer software.*



Real-time access to information for providing timely medical care, as well as confidentiality of data about health (authorized access only)

Relevance



### Administration and registration of patients and information about their health NOWADAYS:

- Tons of paper, which keeps information concerning the state of health of patients, often in different health care institutions
- Necessity of large storage places
- Unavailability of timely access to the information about a patient in emergency situations
- Possibility of unauthorized access to the information concerning the state of health of a person
- Exposure of weather conditions to paper medical cards/archives (moisture, sunlight, etc.)

### Proposed electronic administration and registration system PROVIDES:

- **Real-time access to the information** about the state of health of a person (electronic card=medical passport is always with a person)
- **Authorized access:** an access to the information is provided only to a doctor, who carries out treatment or examines a patient in a particular moment of time (access to the information is available using the special reader/recorder and authentication of a user)
- **Compactness** (similar to a size of a bank card)
- **Resistance to exposure:** moisture, dirt, temperature changes, etc.

All the information about a patient and the state of health (a patient card) is encrypted and stored in the electronic medical passport

Decryption key is unique for each passport

**General  
overview**

## EACH PASSPORT KEEPS

### General information

- Name and surname
- ID
- Blood group
- Contraindications for drugs usage
- Others (date of birth, residence address)

### Patient card (medical history)

- Diagnosis (they are represented according to the International Classification of Diseases ICD-10, approved by the 43th World Health Assembly)
- Time of diagnosing
- ID of a doctor, who diagnosed
- Code of a medical institution, where diagnosed
- Date of diagnosis cancellation (in case it took place)
- ID of a doctor, who cancelled the diagnosis (in case it took place)
- Code of medical institution, where the diagnosis was cancelled (in case it took place)

### Insurance information

- Registration number of insurance policy
- Validity of insurance, etc.

Specially designed card reader/recorder provides a stable and safe transmission of data from / to passport

Hardware



Reader/recorder is a compact device, which is connected to a PC via USB interface

The reader/recorder has no operational and control elements (switch/sensors), because it works under control of the software, installed on a PC.

Unified software. For a doctor. For an insurance agent.  
Recording and reading of data.

Software

Special software was designed; it allows recording medical information and information about insurance concerning a person only after authorization of a user (doctor or insurance agent). Reading of information from the Medical Passport is allowed also only after authentication/authorization of a user in the system (doctor or insurance agent).

The screenshot shows the 'Medical Passport - [Patient's Data]' window. It features a blue header with navigation icons and a UK flag. The main area contains several input fields: Surname (Babisc), Date of birth (01.01.1986), Residence address (some address), and Contra-indicated medicine (empty). On the right, there are fields for Name (Barbara), Middle Name (Coolevna), and ID (000124578596556). A 'Blood group' dropdown menu is set to 'A(III)Rh+'. Below these fields are buttons for 'Write blood group' and 'Read'. At the bottom, a status bar indicates 'The diagnosis is established by the doctor: Babisc Barbara Coolevna' and 'The passport is read'.

The screenshot shows the 'Medical Passport - [Results of current examination]' window. It has a similar layout to the patient data screen. The 'The established diagnosis' field contains 'H00.0 Hordeolum and other deep inflammation of eyelid'. Below this is a tree view of ICD-10 codes, with 'H00.0 Hordeolum and other deep inflammation of eyelid' selected. The status bar at the bottom shows 'The diagnosis is established by the doctor: Babisc Barbara Coolevna' and 'The passport is read'. A 'Save' button is highlighted with a red box.

Multiple and comprehensive statistical data for the Ministry of Health. High mobility of the data about people's health. Solutions for some issues related to the health insurance.

## Prospects

Combining Medical Passport system into a united information processing network, the Ministry of Health will be able to obtain comprehensive statistical information about the following (just some examples):

Number of hospitals' visitors: divided by region, districts and areas during any period of time (hours, days, weeks, months, etc.)

Number of visitors in a particular medical institution

Types of diagnosed diseases for any period of time (statistics of diseases)

Statistics of diseases among population, grouped by regions/districts or in a country at whole

Incidence rate in a specific period of time (real time monitoring)

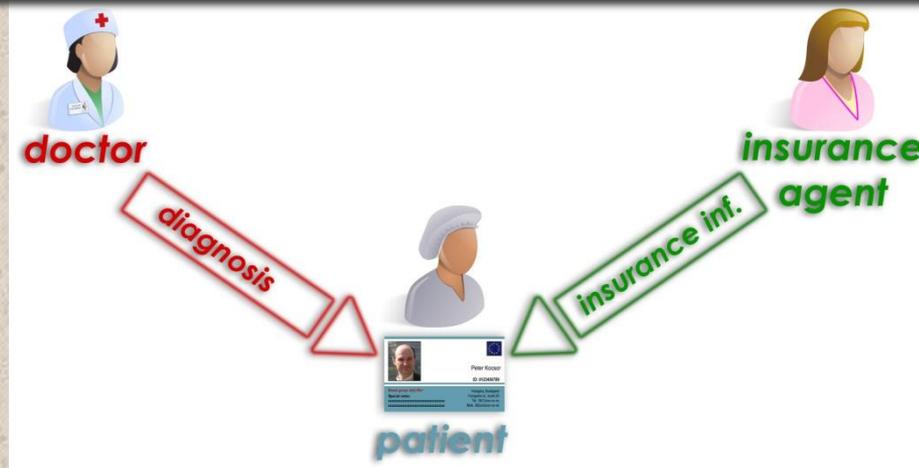
Control under prescriptions of category "A" and "B" (strict control)

and other data, which may be useful for the MOH

# Interaction between main users or the system: a patient, a doctor and an insurance agent/representative of an insurance company

## FLOW-CHART

Information into a medical passport is allowed to add and edit for a doctor and/or insurance agent/representative of insurance company independently.  
Any of the action with a patient's medical passport should be signed using a personal card of a doctor or an insurance agent.



After a personal authentication, it is allowed to add the necessary information to the card:

- ✓ A doctor is able to set or cancel a diagnosis (after successful treatment, for example), to investigate a medical history of the patient and read an insurance information;
- ✓ An insurance agent can read the existing insurance information and add the new one (access to health information is prohibited for an agent).

# Description of the software for a doctor

DOCTOR

After running the software, the authentication of a doctor will be required. It must be done using the special electronic card of a doctor, which should be placed on the top of the reader. After authentication, a doctor will get an access to a medical history of a patient and all other important information, which was recorded to the card earlier.

To do any actions with a patient's medical passport, the doctor puts the patient's passport on the top of the reader and presses a button "Read" in the software (all the information will be displayed).

Medical Passport - [Patient's Data]

Surname:  Name:  Middle Name:

Date of birth:  Blood group:  ID:

Residence address:

Contra-indicated medicine:

The passport should be on the reader | There is a passport reading... | 25.05.2009

Doctor's electronic card contains the following information: code of the medical institution, name and surname of a doctor, ID of a doctor (optionally). This information is used as a personal "signature" of a doctor; it is recorded in the patients' medical passports in a process of authentication and diagnosis setting or canceling.

# Description of the software for a doctor (continue)

DOCTOR

Medical history of the patient with previously set and canceled diagnoses is displayed in the appropriate menu

**Medical Passport V2 - [Medical History]**

Surname: **Babics** Name: **Barbara** Middle Name: **Boolevna**

To show:  The established diagnoses  The removed diagnoses  All diagnoses

Diagnosis:	Date of diagnosis determination:	The diagnosis was established by the doctor:
D55.0 Anemia due to glucose-6-phosphate dehydrogenase [G6PD] deficiency	03.09.2009	000000123456789
D55.8 Other anaemias due to enzyme disorders	03.09.2009	000000123456789

The diagnosis was established by the doctor: Babics Barbara

**Attention!**

On a card of the patient the following information will be written down:

The established diagnosis:  
H00.0 Hordeolum and other deep inflammation of eyelid

Code: **H00.0** Date: **25.05.2009** The diagnosis has established: **Babics Barbara Coolevna** Medical institution: **5tyHospital\_\_2**

Continue?

The doctor may check the chosen diagnosis and confirm it by pressing a button “yes”. Personal information of the doctor will be recorded together with the diagnosis into a card of the patient. **Software is ready for the next patient.**

**Medical Passport - [Results of current examination]**

Surname: **Babics** Name: **Barbara** Middle Name: **Boolevna**

The established diagnosis: **H00.0 Hordeolum and other deep inflammation of eyelid**

Date: **25.05.2009**

- D50-D89 Diseases of the blood and blood-forming organs and certain disorders involving the im
- E00-E90 Endocrine, nutritional and metabolic diseases
- F00-F99 Mental and behavioural disorders
- G00-G99 Diseases of the nervous system
- H00-H59 Diseases of the eye and adnexa
  - H00-H06 Disorders of eyelid, lacrimal system and orbit
    - H00 Hordeolum and chalazion
      - H00.0 Hordeolum and other deep inflammation of eyelid**
      - H00.1 Chalazion
    - H01 Other inflammation of eyelid
    - H02 Other disorders of eyelid
    - H03\* Disorders of eyelid in diseases classified elsewhere
    - H04 Disorders of orbital system
    - H05 Disorders of orbit
    - H06\* Disorders of lacrimal system and orbit in diseases classified elsewhere
  - H10-H13 Disorders of conjunctiva
  - H15-H22 Disorders of sclera, cornea, iris and ciliary body

Enter a word for search:

The diagnosis is established by the doctor: Babics Barbara Coolevna The passport is read 25.05.2009

To set a new diagnosis or cancel the existing one, a doctor needs to make a record using the International Codes of Diseases (ICD-10), which is kept in the software. Navigation is very easy there: it is enough to write just the several letters of necessary diagnosis and corresponding list will be sorted automatically. The searching diagnosis should be ticked only.

# Description of the software for an insurance agent/ a representative of an insurance company

## INSURANCE AGENT

After running the software, the authentication of an insurance agent will be required. It must be done using the special electronic card of an agent, which should be placed on the top of the reader. After authentication, an agent will get an access to an insurance history of a person

**Medical Passport - [Patient's Data]**

Surname: \_\_\_\_\_ Name: \_\_\_\_\_ Middle Name: \_\_\_\_\_  
Date of birth: \_\_\_\_\_ Blood group: Unknown... ID: \_\_\_\_\_  
Residence address: \_\_\_\_\_  
Contra-indicated medicine: \_\_\_\_\_

**Attention!**  
On a card of the client the following information will be written down:

Contract No.	Validity from:	Validity till:	Franchise:
AS-45	25.05.2009 16:35	24.06.2009 16:35	1000

Continue?

The passport should be on the reader      There is a passport reading...

The agent may check the information about new insurance contract and confirm it by pressing a button "yes". Personal information of the agent will be recorded together with the insurance into a card of the patient. **Software is ready for the next client.**

**Medical Passport - [Insurance information]**

Surname: **Babics** Name: **Barbara** Middle Name: **Boolevna**

Contract No.	Validity from:	Validity till:	Franchise:	Company:
DF-4579	25.05.2009 11:25	24.06.2009 11:25	9000	InsurOrganiz__1
D4578	24.06.2009 11:28	31.08.2009 11:28	11000	InsurOrganiz__1

Contract No: **AS-45** Franchise: **1000**

Operates from: Date: 25.05.2009 Time: 16:24  
Operates till: Date: 24.06.2009 Time: 16:24

The insurance agent is registered      The passport is read      25.05.2009

The agent has ability to read and add insurance information.

In case of a new insurance contract signing, the agent fill in the appropriate fields in the software: "Contract number", "Franchise" and duration of the contract,. After pressing the button "Save" all the information will be recorded into the medical passport.