



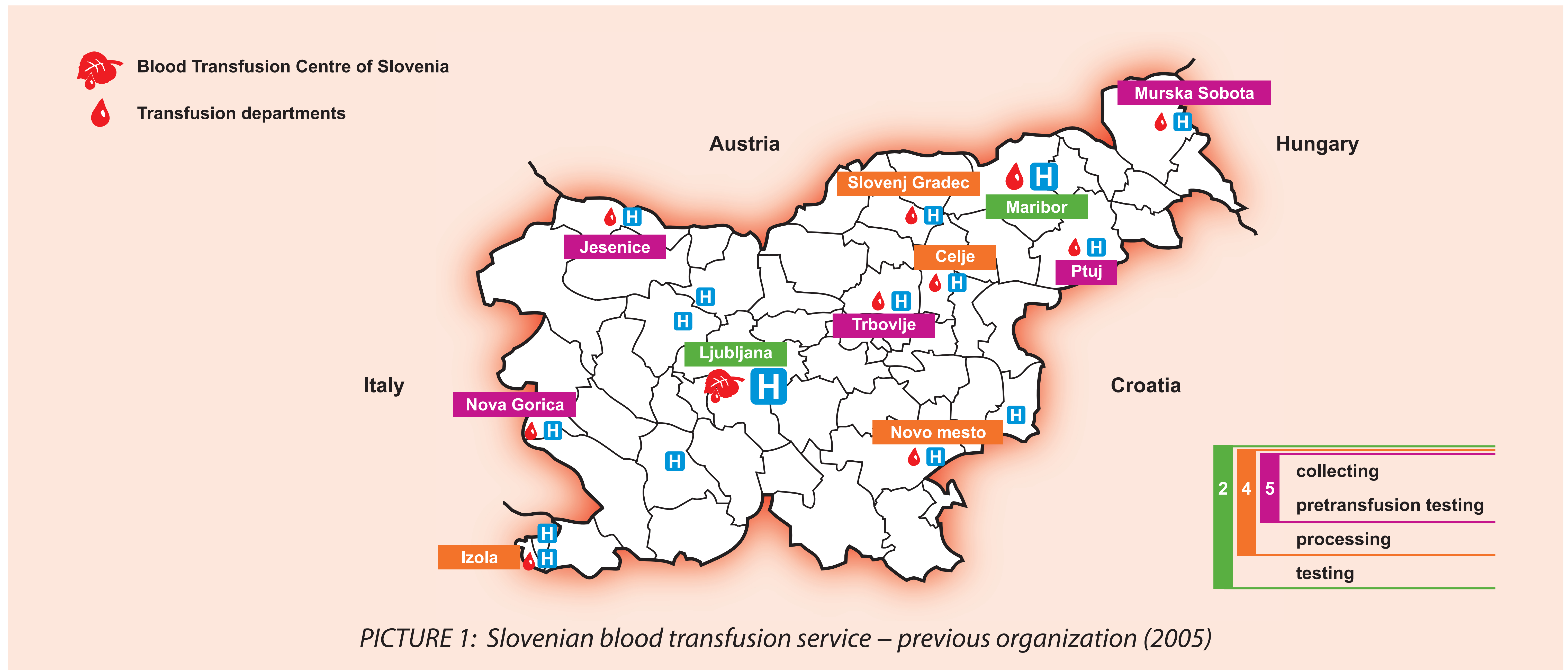
TELEMEDICINE AS A SUPPORT SYSTEM TO BLOOD TRANSFUSION SERVICE REORGANIZATION IN THE REPUBLIC OF SLOVENIA

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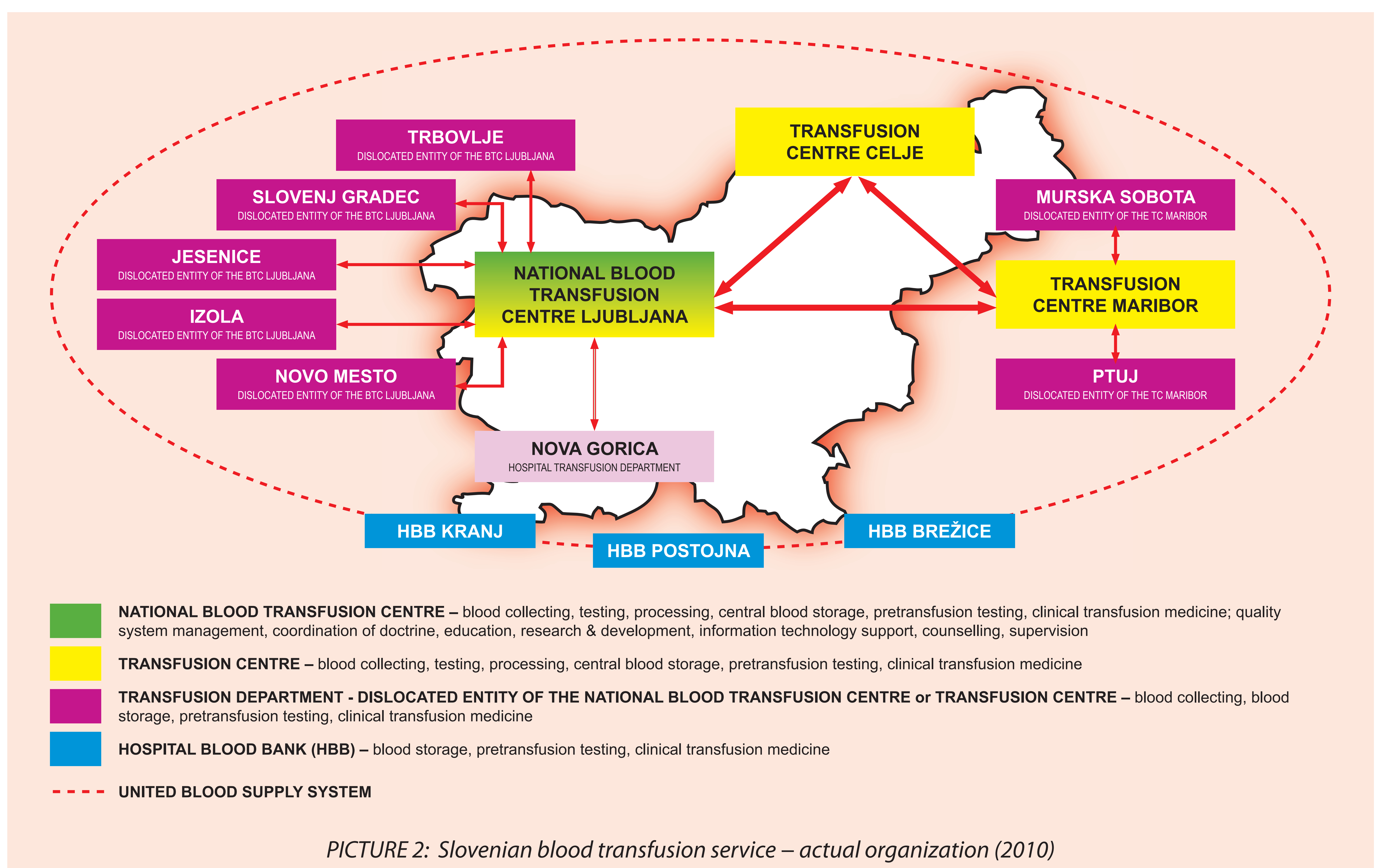
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Introduction

Before the adoption of the new, European guidelines-harmonized national Supply of Blood Act, the Slovenian blood transfusion service consisted out of 10 transfusion departments pertaining to regional general hospitals and the Blood Transfusion Centre of Slovenia (BTC) in Ljubljana, as a leading professional, government-owned institution. The staffs at all 11 locations were involved in blood collection, testing, production of blood components as well as in performing pre-transfusion tests.



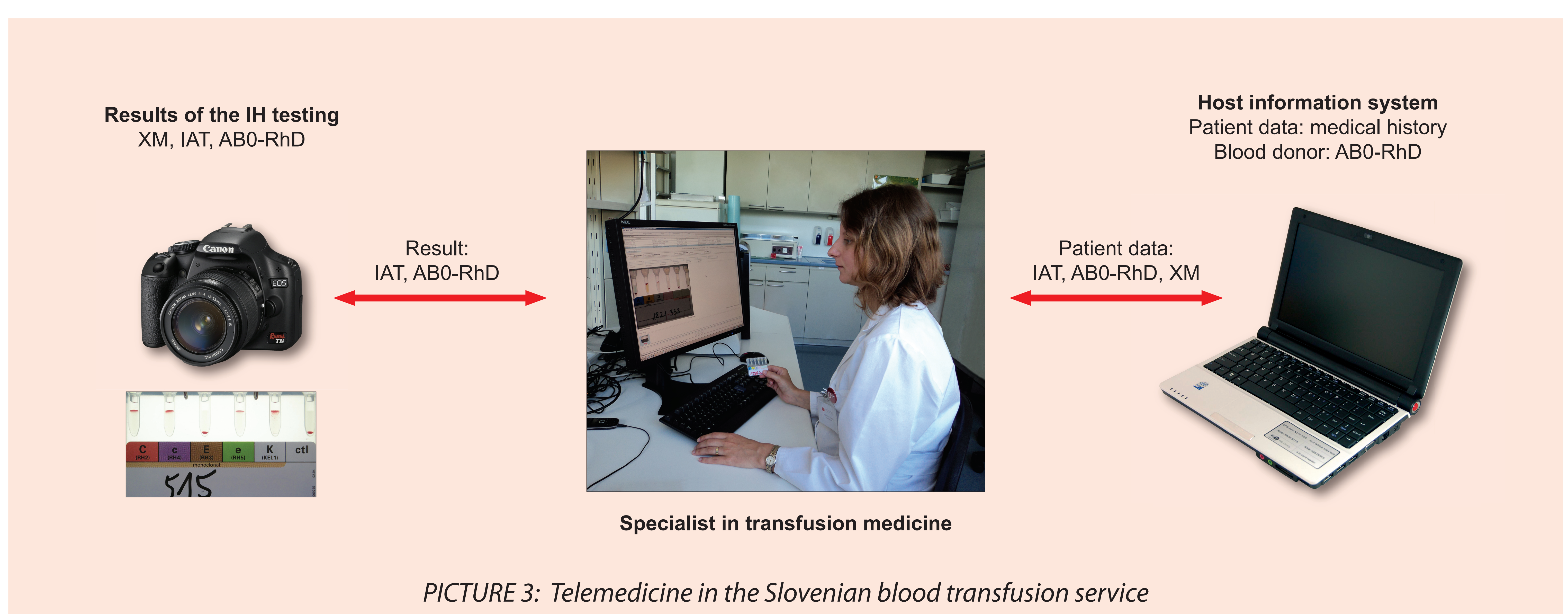
As the Supply of Blood Act set up the highest quality and safety standards, the existence and activities of the former hospital transfusion departments were seriously challenged. The majority of them were finally forced to become organizational entities of the two central national institutions, the BTC in Ljubljana and the Centre for Transfusion Medicine (CTM), a part of the University Clinical Centre in Maribor. Six of them have become dislocated units of the BTC and 2 of the CTM. Meanwhile an additional Centre for Transfusion Medicine, pertaining to the regional hospital in Celje was established.



While at the BTC, the leading national and professional transfusion medicine institution, we are dealing with blood collection, testing, production of blood components as well as performing pre-transfusion tests, the joining dislocated entities are only committed to collecting blood and pre-transfusion testing. The latter has to be accessible to hospitals 24 hours each day during the whole year. In order to be able to guarantee such service, skilled laboratory personnel performing tests and medical doctors specialized in transfusion medicine, reading off tests and interpreting the results, are needed. As not all dislocated entities have such consultant MDs available, they should have been provided by the BTC. The employment of additional new transfusion medicine specialists, which anyhow are not available at the time, would not be in concordance with the general pretension to economize national health costs. Therefore we decided to solve this problem by applying telemedicine.

Methods

Together with our partners we have developed a transfusion medicine teleconsulting system, the so called e-transfusion that enables the reading off of pre-transfusion tests as well as electronic signing of official results on distance. The laboratory personnel at the remote location carry out the required immunohaematological testing and then send it via a special device enabling the capture and transmission of high resolution pictures, showing results of a particulate test to the authorized consultant MD at the BTC who interprets them and electronically signs the official reports.



Results and Conclusions

The numbers and specifications of telemedicine-resolved and evaluated tests per time unit:

	Determination of AB0 & RhD	Crossmatch	IAT	DAT	Antibody specification	Determination of other RBC antigens	Total
2005	32	13	21	8	9	46	129
2006	79	75	9	4	11	33	211
2007	20	29	11	3	28	17	108
2008	107	303	99	32	160	83	784
2009	1.453	3.293	1.142	224	264	1.640	8.016
Total	1.691	3.713	1.282	271	472	1.819	9.248

By introducing the telemedicine-based system into the national transfusion service we have supported and facilitated its reorganization and achieved higher safety and quality standards in evaluating the results of pre-transfusion testing, thereby creating an important economical efficiency impact.