Projects aiming at the preparation and implementation of teaching with the support of e-learning have different goals and strategies. The project Effective Teaching in Secondary Health Care Schools (project No. CZ.1.07/1.1.02/02.0074) involves, besides the participants from Masaryk University, 45 teachers and 857 pupils from three secondary health care schools in South Moravia. The project includes various areas, while the main ones are: teacher training in ICT and e-learning, preparation of comprehensive study materials and teaching activities in a shared environment, work with medical image data, the teaching of students using the materials created. One of its features is sharing and intensive cooperation taking into account the different curricula of the involved partner schools. Although it is difficult to ensure cooperation, the project brings a number of very positive results. For example, the project provides indispensable experience in preparing the students in online education and strategies, management principles and tools of online communication for teachers who have started primarily as the creators of teaching materials, but they gradually move from this role to the one of tutors. A substantial part of the teachers' work and of project coordination takes place in LMS Moodle which has proved to be very suitable not only for the preparation of teaching content and the related communication, but also as a sophisticated yet simple tool for alignment of project activities. The contribution will be focused on a specific part - the preparation of case studies which will enable pupils to use their theoretical knowledge in problem-based learning (PBL). The greatest attention will be paid to the methodological and didactic requirements needed for the preparation of materials for valid case studies. Examples of specific case studies, teaching and educational use of medical image data will also be presented as well as the benefits and potential risks of using the problem-based learning through case studies. Dedicated to the project Zavádění efektivních metod výuky s využitím digitálních medicínských obrazových informací na středních zdravotnických školách (Introduction of Effective Learning Methods in Secondary Medical Schools Using Digital Medical Image Information) CZ.1.07/1.1.02/02.0074, short title: Effective Teaching in Secondary Health Care Schools.