



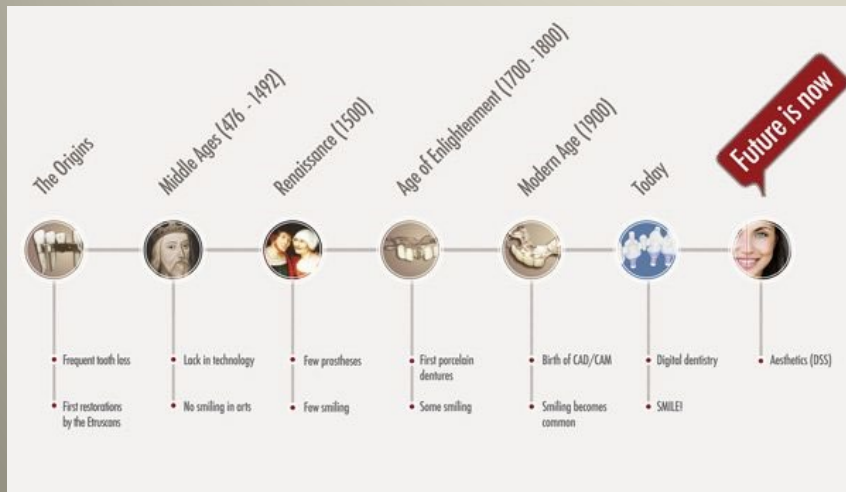
Digitalization in dentistry – Czech and European experience

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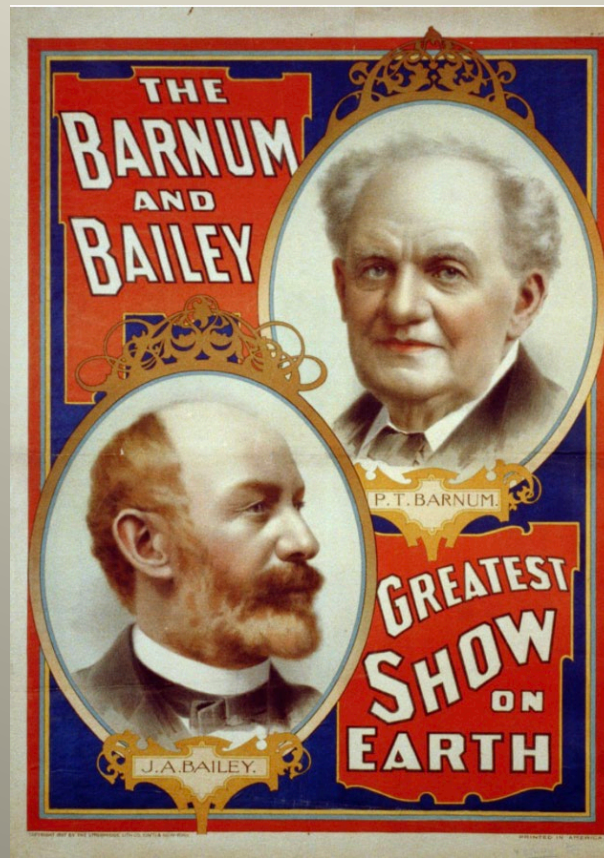
Czech Dental Chamber
Charles University Prague



Dentistry is experiencing its most significant structural change in at least 100 years.



"The IT boom was like a whirlwind, and now, with AI at the center of attention, it feels like we're in a kind of Barnum-esque spectacle. But where does the reality lie?"



Current State of Electronization in EU Dentistry

- Significant differences between states
- Fragmentation of systems
- Some states have their own DHS; some are starting
- Bombastic Plan of the EU – to share all patient's data, including dental details- multiple times postponed – until 2029
- A significant advantage of early adopters to the rest of dentists – future economic problems? Chance for dental chains?

Current State in the Czech Republic

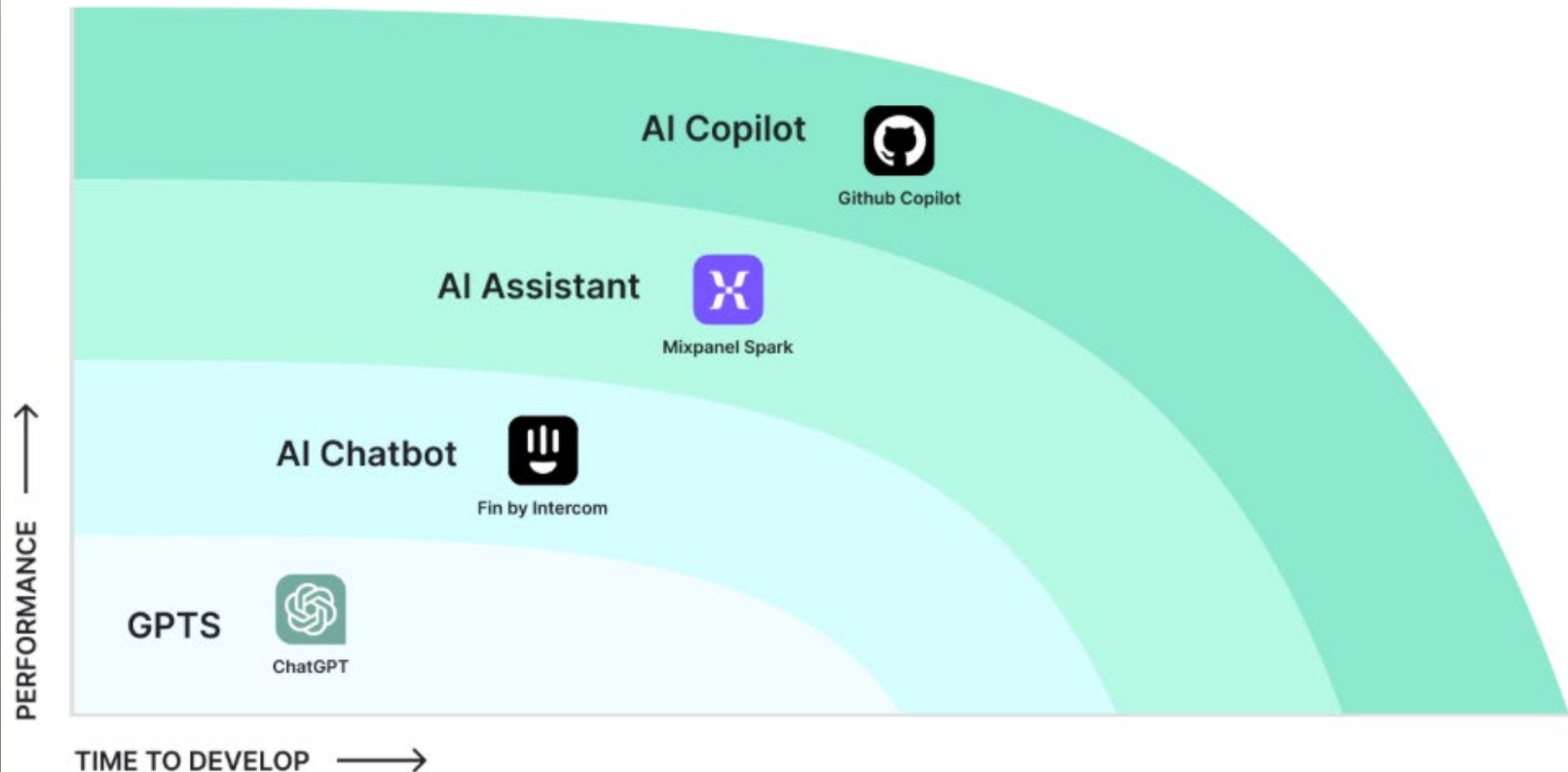
- The Czech Republic is gradually implementing digital dentistry, but adoption varies widely. As of 2023, around 65% of Czech dental practices used digital systems, such as EHRs, lagging behind the EU average of 70% (older colleagues do not want to digitalize)
- The Czech Ministry of Health has launched initiatives to promote digital health, including the National eHealth Strategy.
- New law, electronic prescription, and communication with insurance companies implemented
- No unified X-ray network, no DHS

Introducing Dentistry AI: Revolutionizing Dental Care with Cutting-Edge Technology!

WILL DIGITAL HEALTH TECHNOLOGY REPLACE PHYSICIANS?



"Stay safe in the world of AI by equipping yourself with the right knowledge and tools to minimize the risk of AI hallucination!"



Who can read all „papers“ daily, including general medicine?

- Literature overview – use copilots and the best possible AI !!
- Individual information for the specific patient according to all data he/she has – medication (do you know all labels?), blood tests, history, previous implant surgeries- real informed consent!!!

What's Coming: AI and Machine Learning in Dentistry

- AI is expected to revolutionize dental diagnostics and treatment planning by enhancing precision and personalizing care.
- The reality in the Czech Republic – early adopters use it (X-ray, documentation, pieces of information for patients and team)
- General law about regulation of AI, but no feasible governmental strategy
- The Czech Dental Chamber provides education for members
- To make use of AI in some procedures (X-ray) mandatory one day?

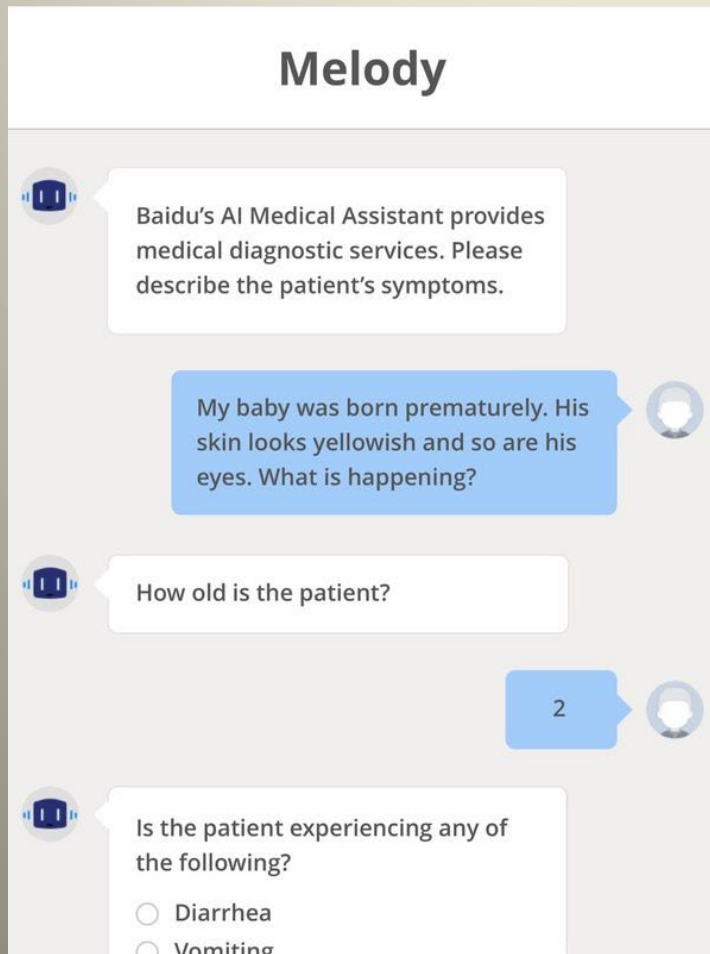
Teledentistry as Videocall only



Teledentistry for Patients



Teledentistry with AI



What's Coming: Telemedicine in Dentistry

- Teledentistry offers the potential to improve access to dental care, especially in rural and underserved areas.
- Telemedicine is supported in the Czech Republic (COVID-19 seen as excellent proof) – grants, paid experiments, paid by local governments.
- Very frequent is Teledentistry in Orthodontics- effective gadgets
- Some first platforms- emergency consultation or consultations for expensive treatments (orthodontics, implantology, cosmetic dentistry)

What's Coming: Digital Imaging and Diagnostics

- Adopting advanced digital imaging technologies such as 3D scanners and digital radiography is transforming diagnostics.
- Younger Dentists- 100% adoption, older- slower adaptation- very frequently delegation to the members of the dental team
- It makes dental practices bigger (more cooperating dentists) and advantages for dental chains- economy of scale

What's Coming: Integration of EHRs

- The integration of EHRs across the EU aims to improve patient care and reduce errors through better information sharing.
- The final plan is very ambitious (too much, I think) – to share patients' data across the whole EU, incl. Detail about every tooth- very expensive and complicated- final date is moving forward- 2023,26,29 and counting

Shortcuts: EU Regulations and Standards

- EU regulations like the General Data Protection Regulation (GDPR) and the Medical Devices Regulation (MDR) provide a framework for safe and effective digital health practices.
- All regulations are implemented with no significant problems for Dentists, but it is not comfortable for patients, and in reality, GDPR and MDR are not used in 100% of cases
- Regulations make adaptation of many new apps from the USA slow with no positive effect on patient

Shortcuts: Funding and Grants

- EU and national grants are available to support the digital transformation of dental practices. The EU's Horizon 2020 program has allocated €80 billion for health-related digital innovations, including dentistry ...
- ...but in reality, no money is coming to the dental offices – only new laws and costs- dentists are in the position of gigantic EU plans which have dentists and patients pay in reality. Grants and EU programs are complicated – some dentists take a lot of money, majority nothing- it is a deformation of the whole market

Problems: Data Privacy and Security Concerns

- Ensuring the security and privacy of patient data is a major challenge in electronification.
- GDPR violations can lead to fines of up to €20 million or 4% of global turnover, underscoring the importance of compliance. So, it is scary for dentists.
- On the other hand, many dentists have concerns about the privacy of patient data when it is shared across the EU.

Problems: Technological Barriers

- Integrating new technologies with existing systems can be challenging due to compatibility issues and lack of standardization.
- About 30% of dental practices need help integrating new digital tools with their infrastructure.
- We have many systems for dental offices, and now we will have a law about data standards.

New curriculum? Re-education of the entire dental team?

DIGITAL DENTISTRY CURRICULUM



DIAGNOSIS



DENTAL
ANATOMY



OPERATIVE
DENTISTRY



IMPLANT
DENTISTRY



TREATMENT
PLANNING



DIRECT
PATIENT CARE



FIXED AND REMOVABLE
PROSTHODONTICS

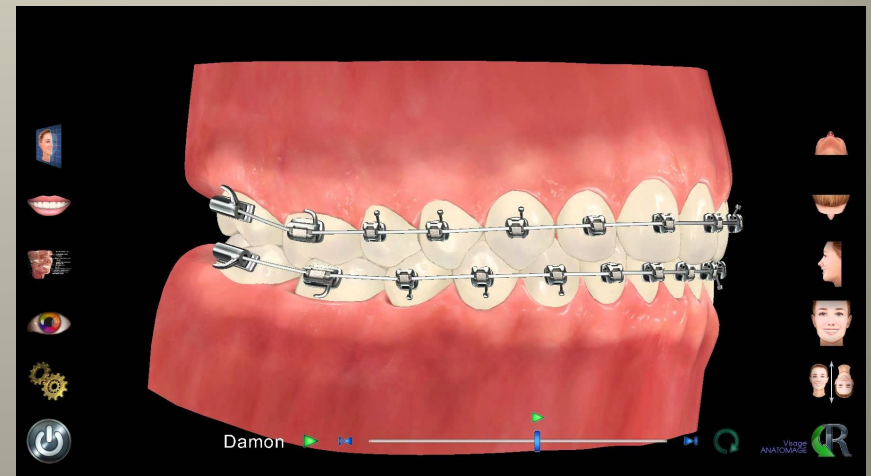


Problems: Training and Adoption

- The successful adoption of digital tools in dentistry requires proper training, yet many dental professionals need to gain the necessary skills.
- Only 40% of dental professionals in the EU feel adequately trained to use digital tools.
- The Czech Republic's Dental Chamber has initiated training programs, but participation from „late adopters“ remains low.

Key topics today – communication with
patients, informed consent and
administration

Fully automated AI-driven
informed consent with an
unlimited number of questions,
before and after TX



**Thanks for your time! Please feel free to
contact me if you need anything, and don't
forget to consider visiting Prague!**

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