Digitalization in dentistry, The Danish Dental Association and Plandent 01.09.2023 - part 3

Speakers
Jan Wolff, professor, oromaxillofacial surgery, IOOS
Kenneth Vikkelsø Jordy, dentist
Adam Gade Ellesøe, dentist, and Morten Rye, dental technician, and Allan Stæhr, aesthetic dental technician
Martin Heiden, dentist
Mette Terp Høybye, professor of Medical Anthropology

Reservations
All reservations for the correct reproduction of the course material in the notes are taken by the author.

Top 3 Dental Insights

1. Dentists are historically technological first movers

Dentists have historically been technological first movers.

X-rays have greatly improved dental diagnosis and treatment.

Friedrich Otto Walkhoff took the world's first dental X-ray. The exposure time was 25 minutes and the patient suffered some hair loss afterwards. Many dentists have suffered radiation damage after years of X-rays.

2. Why is adapting new technology so difficult?

Adapting new technology is not only about the technology, but also about the culture and adaptability of management and employees.

Those who are good at listening to users can drive innovation and develop products in the right direction.

Diffusion of innovation:
There is a big difference in how quickly people adapt to a new invention.
• Innovators (2.5%) ->
• Early adopters (13.5%) (THE GAP, THE CHASM) ->
• Early majority (34%) ->
• Late majority (34%) ->
• Laggards (16%)

Why is adapting new technology so difficult?
• No need or benefits
• Costs outweigh potential benefits
• Workflow concerns - disruptive

• Lack of skills/training
• Disrupts established hierarchies

3. AI in dentistry

The relationship with AI is fascinating. You don't have to be against AI. AI is already here. We need to create the best kind of collaboration to maximize the potential of AI.

AI and dentistry:
• Diagnostics and imaging
• Planning and treatment
• Predictive analytics
• VR and AR
• Patient communication and education
• Robotic dentistry

AI can act as:
Tool (e.g. platforms like ChatGPT, Notion)
Assistant (e.g. booking systems, chatbots)
Collaborator (e.g. sparring with AGI for treatment planning or case assessment)

AI can offer second opinions to patients.

In the future, AI can also be trained to make ethical considerations. Ethical considerations differ from country to country and person to person.

It is important to maintain the human touch. The receptionist has been replaced by a scanner in many places, but this has removed the human touch.

That was Top 3 Dental Insights.

Get the rest of the notes below and as a PDF at the bottom of this mail.

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Technology as a partner and friend in dental practice

V/ Mette Terp Høybye, professor of Medical Anthropology

"Matter out of place" = easily causes discomfort!

Wilhelm Röntgen took the first X-ray of his wife's hand.

Friedrich Otto Walkhoff took the world's first dental X-ray. The exposure time was 25 minutes and the patient suffered some hair loss afterwards. Many dentists have suffered radiation damage after years of X-rays.

Dentists have historically been technological first movers.

X-rays have greatly improved dental diagnosis and treatment.

The iPhone and iPad and other touch devices have also been an extreme and intuitive advancement in our communication and task completion. Even children can intuitively understand how to swipe.

The Hype Cycle has 5 elements
Innovation trigger ->
Peak of inflated expectations ->
Trough of disillusionment ->
Slope of enlightenment ->
Plateau of productivity

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Technological paradoxes
Ambition to remove uncertainty —> Creates new uncertainties
Ensuring accuracy and prediction —> But can I trust it?
The robot can do the job, maybe better —> But who has the responsibility and authority?

The social ecology of society is no longer an industrial society, but is now a network society. We absorb knowledge from each other.

AI can offer second opinions to patients.

Patient education = AI and patient data can help other patients learn more about their health and disease.

Technology and patients
Pain and anxiety management
Patient education - interactive
Post-treatment care
Translation tools - facilitating communication
Teledentistry

The relationship with AI is fascinating. You don't have to be against AI. AI is already here. We need to create the best kind of collaboration to make the most of AI's potential.

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Tool (e.g. platforms like ChatGPT, Notion)
Assistant (e.g. booking systems, chatbots)
Collaborator (e.g. sparring with AGI for treatment planning or case assessment)

AI will affect our professional identity and authority. Who is an expert in what?
AI precision and data-driven recommendations -> But decisions require healthcare judgment and interpretation.
Open new courses of action with new conclusions -> But we need to ensure consistency with evidence.
AI algorithms and function must be transparent. -> But documentation of AI methods and data sources must ensure credible recommendations.

AI won a chess tournament because it made data-driven decisions differently than the world's best chess player.

Take home message
AI has great potential to relieve the burden on dental care workers: increase accuracy, optimize workflows, increase quality of treatment and care.
Adopting and using new technology is a relationship work: it requires knowledge, time, curiosity, patience.
Integration of AI must improve patient care and clinical practice: harness the power of technology, not undermine human expertise and care.

Shared discussion on the future of technology in dentistry

V/ Jan Wolff, professor, oromaxillofacial surgery, IOOS
V/ Adam Gade Ellesøe, dentist, and Morten Rye, dental technician, and Allan Stæhr, aesthetic dental technician

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V/ Mette Terp Høybye, Professor of Medical Anthropology

What about overdiagnosis?
New technology can create more social inequality because it is typically the resourceful people who use it. It's up to us as healthcare professionals to build good relationships with our patients and perform good patient education, and guide and decide on when and how to treat. In particular, Patient Monitoring is a powerful tool to diagnose and monitor the patient's dental status. Early detection IS prevention.

It's important to maintain the human touch. The receptionist has been replaced by a scanner in many places, but this has removed the human touch.

Where do we go from here?
Especially documentation and record-keeping of patient information is a huge burden and it would be great to have speech recognition (Martin Heiden and Varde Kommunale Tandpleje are testing it right now) from the practitioner during treatment directly dictated into the record.
A chatbot for dentists.
A robotic arm as an artificial clinic assistant for suction, etc.
An AI-supported OP of all new patients so we can detect missed clearance, etc.
Intraoral sensors that can detect early changes in pH and other biomarkers in saliva.
Improved ergonomics with AI-supported camera in a caregiver's goggles.

Aldente's CME module can support and alert the clinician to medical interactions.

People actually want to be monitored and monitored for greater peace of mind. There will still be a lot of social inequality.

Ethical considerations with AI
In the future, AI can also be trained to make ethical considerations. The ethical considerations are different from country to country and person to person. Every internal discipline and every person will continue to have their own context-dependent microchatbot in the future. It is us as humans who feed the machines with data. We humans must supervise the computers so that it doesn't escalate into unethical data and algorithms.

Tour of Denmark's new revolutionary medical record system NEXTA

V/ Dennis Hindsberg, CEO Plandent
V/ Claus Millington, Plandent
V/ Ulla Mathiasen Pilemand, Plandent

The first big data study was in Taiwan, and it had 300,000 data points.

Plandent's collaboration with UCPH and Rigshospitalet "PlanPerioMed" now has the world's largest - there will be 4.6 million patient data (so far there are 1.5 million).

Plandent's ambition is to build the world's best medical record system to make the everyday life of dental professionals easier. Dentists want to share knowledge with each other and want to do what's best for dental health. The most important thing for the dental clinic is the staff.

NEXTA is future-proof and cloud-based, which is more stable, intuitive, user-friendly and easy to work with. It has been developed in conjunction with users from Danish dental clinics. Updates can be made on the fly, macros can be easily adjusted, and record keeping can be done quickly.

All users of NEXTA should become self-reliant so they don't have to call in to support. All individual user setups can follow the individual user.

A consent macro is built into the treatment plan, so you are automatically compliant with STPS guidelines.

NEXTA has integrated the financial system e-conomic, where data is synchronized.

NEXTA online booking via computer and tablets uses MitID.

Patient portal includes online booking, online consultation, chat/info, patient profile, patient journal, treatment estimates, patient finances, patient satisfaction.

Five-finger system:
The patient comes in.
Findings are made
Treatment estimate
Patient information and consent
Treatment and treatment

AI second opinion is built in to the X-ray system in Media Center.