



CLINICAL & RESEARCH

2024 Report

EAR NOSE AND THROAT - HEAD AND NECK SURGERY AND AUDIOLOGY



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Reflecting on the year 2024

- by Mads Klokke, Chief Surgeon

As I reflect on the past year, I am filled with gratitude for the dedication and collaboration that has defined our efforts. To my colleagues within the clinic and research, the team at the [Centre of Head and Orthopaedics](#) (HOC) at Rigshospitalet, our external partners, and not least the patients who entrusted us with their care – thank you. It is a privilege to serve as a healthcare provider, a responsibility we embrace with pride every day.

Throughout the year, we remained dedicated to our core task of treating patients while simultaneously conducting research, ensuring education and innovation alongside our daily clinical work. The year 2024 also brought significant changes, both within the healthcare landscape and beyond. Among these changes, our Director of HOC decided to pursue a new role within Region Zealand. We extend our gratitude for the excellent collaboration and

leadership. Domestically, the announcement of the merger between the two Zealand regions marked a significant shift, while geopolitically, emergency preparedness became a pressing priority.

Our [collaboration with the Greenland](#) government remained a cornerstone of our work, with a special focus on hearing loss, ENT surgery, and rehabilitative counselling and follow-up care for patients with head and neck cancer. These priorities may stand in contrast to the issues in current public media.

Our engagement with the [Danish Armed Forces Health Services](#) has gained increasing significance in an unpredictable world. Enhanced efforts in preparedness will remain a top priority in the years ahead.

In 2024, we also embraced a holistic approach, looking beyond the boundaries of our own Department in alignment with Rigshospitalet's vision: to benefit the individual patient and contribute to the overall healthcare system. A key focus has been on enhancing our readiness to meet challenges and opportunities with agility and foresight. This includes an openness to closer collaboration, such as consolidations, and a broader focus on addressing societal needs, including those of the elderly.

By fostering integration and collaboration across disciplines, we have extended our reach and ensured our efforts support patients across all ages and social contexts. This dual commitment to preparedness and collaboration has strengthened our ability to respond to the evolving needs of both individuals and the healthcare system as a whole.



In 2024, we also embraced a holistic approach, looking beyond the boundaries of our own Department in alignment with Rigshospitalet's vision: to benefit the individual patient and contribute to the overall healthcare system.

The provision of hearing aids has highlighted challenges for the patient navigating in public and private healthcare, yet our audiological services remain robust and quality-assured. We have also worked to address the interaction between treatment guarantees and waiting lists, which, while well-intentioned, can sometimes strain the broader health-care system.

Finally, we are proud to report an operational efficiency of 110.4%. This reflects the pace at which we work, yet

always with the same commitment to quality that defines everything we do.

Warm regards,

Mads Klokker
Chief Surgeon



MADS KLOKKER

Head of Dept. of Otorhinolaryngology Head & Neck Surgery Audiology Rigshospitalet, Copenhagen University Hospital

Head of Military Aviation Medicine and Copenhagen Hearing & Balance Center.

MD and associate professor in Otorhinolaryngology, Copenhagen University

Affiliated Danish Armed Forces Health Services

60+ peer-reviewed scientific publications

30+ years in otorhinolaryngology

A photograph of two healthcare professionals, a man and a woman, walking together in a bright, modern hospital hallway. They are both wearing white scrubs. The man is on the left, wearing a white short-sleeved button-down shirt over a white t-shirt and white pants. The woman is on the right, wearing a white short-sleeved button-down shirt over a white t-shirt and a white knee-length skirt. They are both smiling and looking at each other. The hallway has large windows on the right side, letting in bright sunlight. The floor is a light green color. The ceiling has recessed lighting. The overall atmosphere is clean, bright, and professional.

KEY STRATEGIC PRIORITIES IN NURSING CARE

- Involvement of patients and relatives in all aspects of nursing care
- Strengthening nursing support for patients during transitions
- Nursing excellence through a practice-based research and development culture
- Valuable and measurable nursing research through national and international collaboration

Reflecting on the year 2024

- by Tine Bloch Jensen, Chief Nurse

The year 2024 has been a milestone for our ENT Nursing Department. This year, we proudly launched our new [strategy for nursing research and development](#), a collaborative effort finally shaped by 16 dedicated colleagues and numerous interviews. Our strategy is grounded in our core values of ethics, compassion, cohesion, and high professional standards, setting the framework for our work from 2024 to 2029.

At the core of this strategy is a holistic patient pathway centred on the unique needs and circumstances of everyone. We prioritize the active involvement of patients and their families in all aspects of nursing care, enhance support during critical patient transitions, and promote nursing excellence through practice-based research and innovation. Furthermore, we are dedicated to delivering impactful and measurable nursing research by fostering national and international collaborations, while embracing the potential of technological advancements and interdisciplinary teamwork.

Our commitment to quality and collaboration is also reflected in our 2024 patient satisfaction scores. In 2024, as in previous years, we consistently achieved a top-tier rating, maintaining our position at the highest end of the

scale. This is a testament to the dedication of our teams and the strong everyday cooperation that makes a difference to our patients.

Furthermore, we have seen a continued increase in visits by our outreach teams, demonstrating our expanding efforts to provide care beyond the hospital walls. From 81 visits in 2020, we rose steadily to 333 visits in 2024, reflecting our commitment to meet patients where they are.

As part of our ongoing focus on development, we also launched a [LinkedIn](#) page for ENT Nursing, Research and Development in 2024, aiming to enhance communication and share knowledge with a wider professional community.

I am proud of what we have achieved together and look forward to building on this strong foundation in the years to come.

Warm regards,

Tine Bloch Jensen
Chief Nurse

[ENT nursing care LinkedIn](#)



TINE BLOCH JENSEN

Head Nurse of Dept. of Otorhinolaryngology
Head & Neck Surgery Audiology Rigshospitalet, Copenhagen University Hospital

Leadership in Research – Executive Programme, Region Hovedstaden

Master's (stud.) in Business Coaching

Diploma in Health Sector Organisation, Leadership and Economics, University of Southern Denmark

30+ years in otorhinolaryngology

Ear, Nose and Throat in focus

The Otorhinolaryngology and Audiology (ENT) specialty focuses on the diagnosis, treatment, and surgical management of conditions affecting the ear, nose, throat, and related structures of the head and neck. As a surgical and audiology Department, we provide advanced care for patients of all ages, addressing hearing impairments, balance disorders, audiology-related needs, airway challenges, and head and neck pathologies.

Nose

- Airway management
- Sinus disorders
- Global Airways
- Smelling rehabilitation

Throat

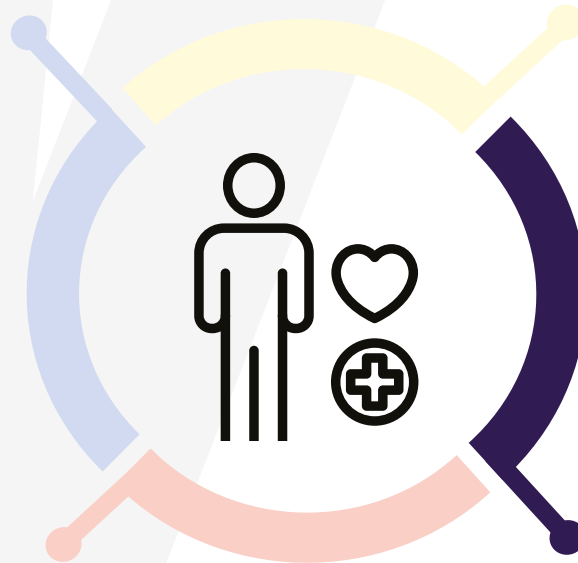
- Head & Neck disorders
- Cancer
- Guided robotic optic surgery
- Ultrasound diagnostics
- Stemcell research
- Palliative rehabilitation

Ear

- Ear diseases
- Hearing disorders
- Vestibular disorder
- Audiological rehabilitation
- Otopathology laboratory

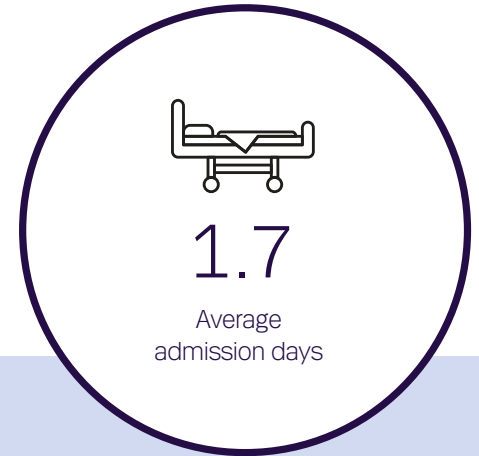
Education

- Evidence based education
- Hands-on training
- Virtual Reality training



ENT in numbers

In this dashboard we highlight a selection of key statistics showcasing our performance and progress. These numbers represent the impact of our collective work, offering a snapshot of our milestones and the trajectory we are on.



5713
Surgeries



27
Weeks in
Greenland

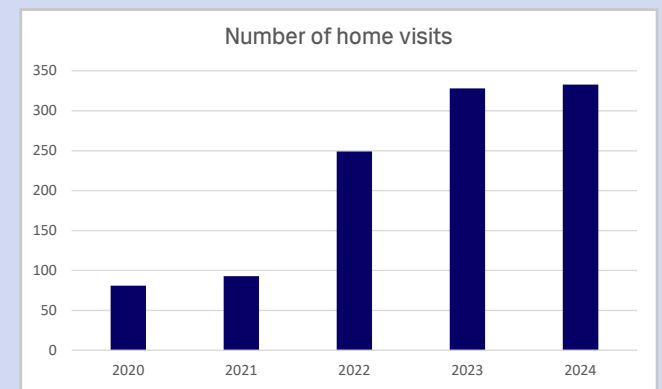
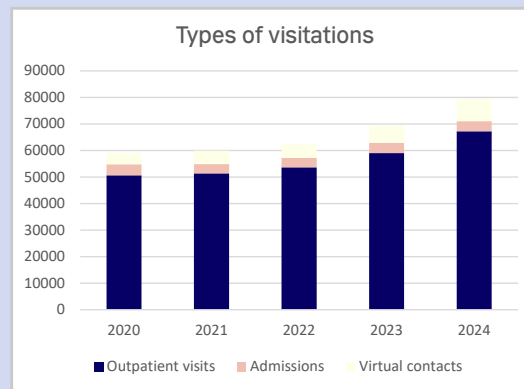
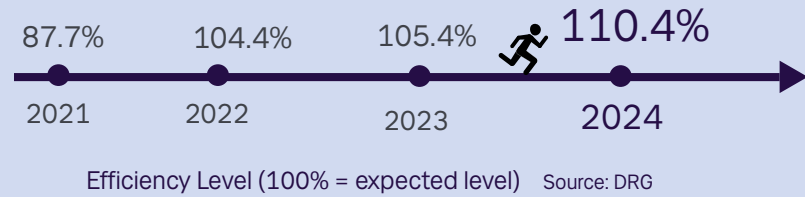


36 377
Unique patients



4.36
Patient
satisfaction score

Source: Internal



Head and Neck Cancer

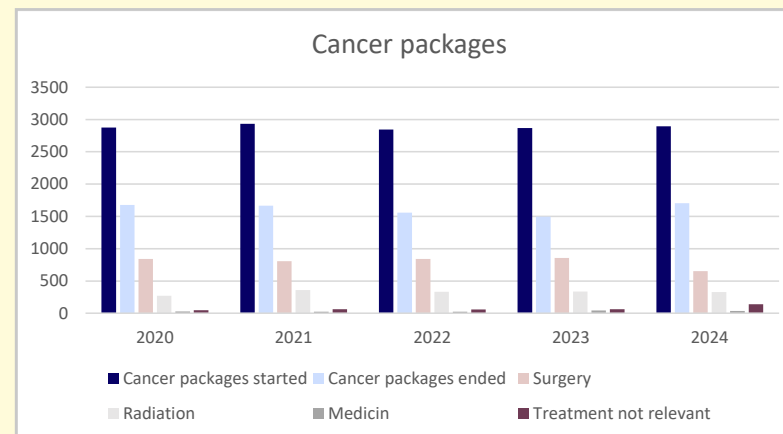
11
Types of cancer
85 separate DRG-codes

1619
Unique patients
with cancer

Source: Internal

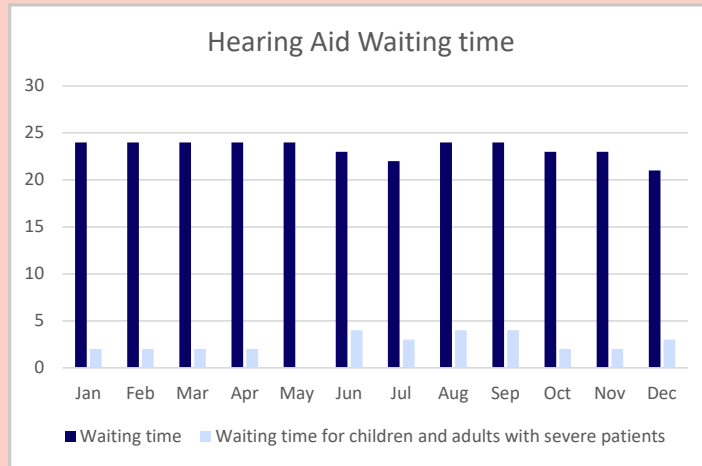
Top 5 most common cancer diagnoses

- Oral cavity cancer
- Oropharyngeal cancer
- Tonsil cancer
- Thyroid cancer
- Laryngeal cancer



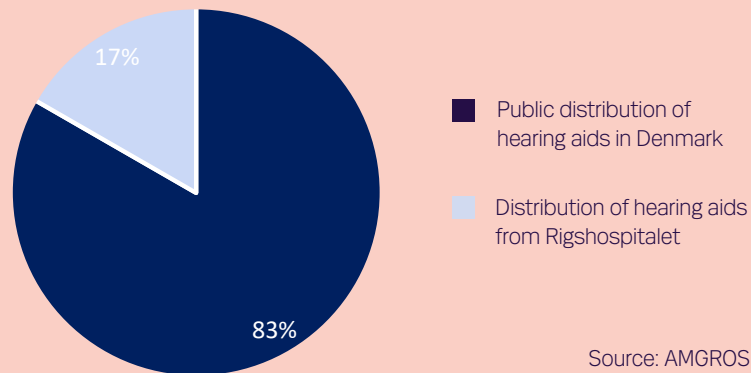
Source: Internal

Hearing Aids



Source: Internal

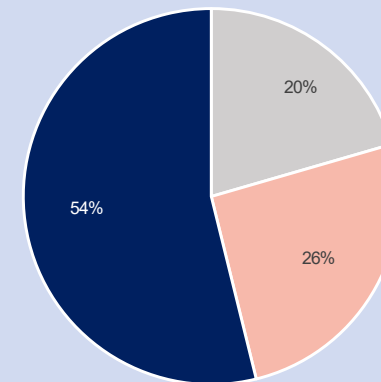
Distribution of hearing aids in Denmark



Source: AMGROS

Research

Ongoing PhDs

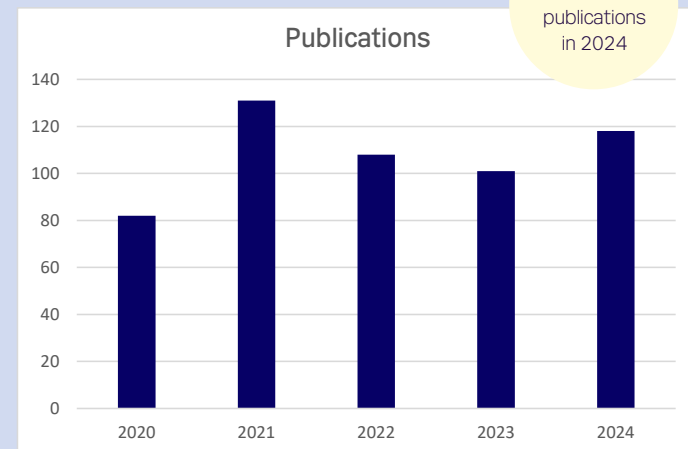


39 publications in progress

- 21 with focus on Ear
- 8 with focus on Nose
- 10 with focus on Head and Neck

118

publications in 2024



Source: [PURE \(Publication and Research platform\)](#)

Activities in Greenland

FACT

ENT in Greenland

Denmark has a health responsibility to all patients within the Kingdom of Denmark, encompassing Greenland, the Faroe Islands, and Denmark. Given the challenges of vast distances and severe Arctic weather in Greenland, there has been a growing emphasis on handling chronic conditions such as Head and Neck cancers, along with childhood hearing issues in remote communities. The Department has entered into a long-term collaboration with the Greenlandic Self-Government to strengthen the delivery of comprehensive ENT services. This partnership prioritizes the development of local capacity, the implementation of culturally adapted advanced technologies for diagnostics and hearing rehabilitation, and the identification and integration of community strengths to support sustainable healthcare solutions. Denmark also aims to incorporate learnings from Greenland's expertise in delivering healthcare in remote settings and a holistic approach to health, thereby promoting mutual capacity-building and cross-cultural understanding.

In 2024, the [ENT Department conducted activities in Greenland](#) in close cooperation with the ENT Department at [Queen Ingrid's Hospital](#) in Greenland, focusing on three primary areas: Tonsillectomy, Otology & Audiology, and Head and Neck Cancer. These efforts aimed to enhance patient care, improve safety, and develop sustainable healthcare solutions for the Greenlandic patients. Below is an overview of the initiatives and developments in these key areas.

Removal of the tonsils

To reduce the risk of postoperative bleeding after tonsillectomy procedures in remote coastal areas, a new operational structure was piloted in 2024. Under this new structure, tonsillectomies are performed early in the visit, followed by ear surgeries. This ensures the presence of both a surgeon and an anaesthesiologist to manage potential complications, such as postoperative bleeding. The extended presence of specialists during these visits has not only improved patient safety but

also facilitated collaboration with local staff to optimize patient list management and streamline workflows. This change has increased flexibility in planning ENT tours, enabling procedures to be efficiently grouped into cohesive visits

The final updates to patient safety protocols for tonsillectomy were completed in 2024. These include updated patient information materials in both Greenlandic and Danish, tailored for children and adults in Nuuk and coastal regions.

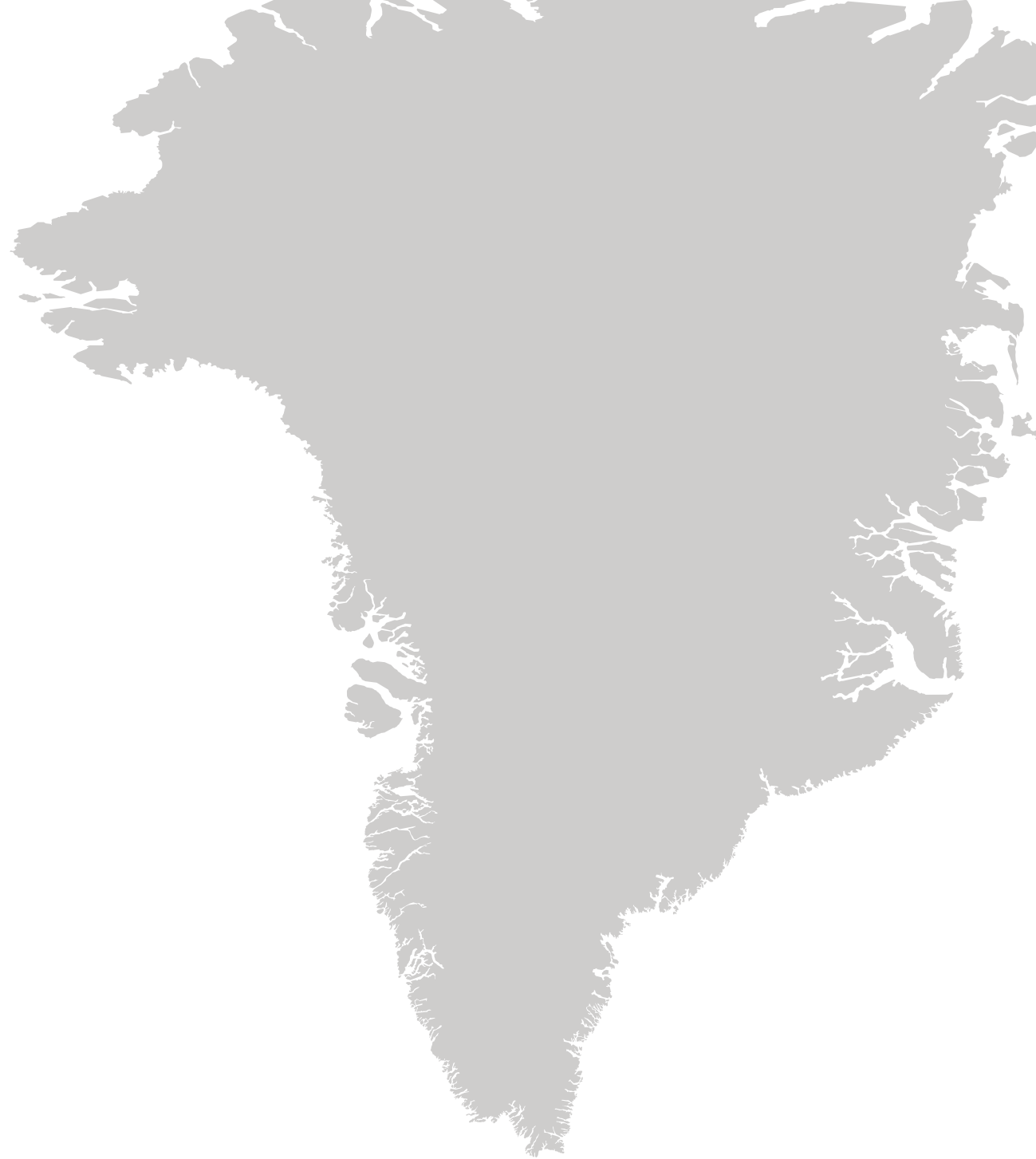
Cancer in Head and Neck

In the area of head and neck cancer, an important milestone was achieved in 2024 by the nurses in the surgical outpatient clinic in Nuuk, who now can offer rehabilitative counselling and follow-up care for patients with head and neck cancer. This service is crucial for improving both the quality of life and survival outcomes for this patient group.

FACT

TONSILLECTOMY

The surgical removal of the tonsils is generally considered safe, but it carries some post-operative risks. The most common complications include bleeding, particularly within the first 24 hours or 5 - 10 days post-surgery.





Smertestillende medicin er ikke altid nok. Nogle gange skal Minik have øreskylning, øredråber, eller i sjældne tilfælde flydende penicillin. Ved meget øreflåd kan skylning være nødvendig før øredråber.

Otology & Audiology

In 2024, a collaborative initiative was launched to modernize diagnostic hearing assessments, aiming to promote equitable and improved access to care. The introduction of automated testing systems, designed to replace outdated audiometry equipment, will enable a broader range of healthcare professionals to perform hearing evaluations. This project is being developed in close partnership with the Head of Audiology Services and the Head of ENT in Greenland, as well as the Head of the Copenhagen Hearing and Balance Center. This initiative reflects a collaborative effort to provide more audiological services locally, reducing the need for patients to travel abroad for treatment which support the needs of Greenland's population in a practical and sustainable way.

As a preventive measure against chronic middle ear inflammation and associated hearing loss, the department collaborated with Ilisimatusarfik to create an animated [educational video for parents](#). The video provides guidance on managing chronic ear problems effectively and is expected to benefit general practices and regional hospitals.

Coordinated Presence in Greenland

Our department provides transnational health care in close collaboration with the team at Queen Ingrid's Hospital, ensuring improved communication and continuity of care for individual patients. This applies both within Greenland and in relation to planned treatment pathways at Rigshospitalet in Copenhagen.

We coordinate our presence in various ways to cover rotational assignments and coastal visits and the Department has collectively been on-site for a total of 27 weeks and additionally an audiology team has visited Nuuk and coastal towns for four weeks. This involves teams of doctors, audiologists, speech therapists, and nurses. This transnational collaboration aims to strengthen patient care through closer coordination and shared expertise.

FACT

EAR INFECTION

The prevalence of chronic ear infection and hearing loss is notably higher among the Inuit population, an inherent condition that often results in chronic ear discharge and limits the effectiveness of hearing aids. Addressing this issue remains a priority for the department.

[Educational video for parents](#)





Preparedness - An obligation

In 2024, preparedness considerations within our Department have intensified. We must remain prepared to act should a crisis arise, whether it pertains to supply chain disruptions, increasing criminal activity, including cyber threats, climate change impacts, or geopolitical instability.

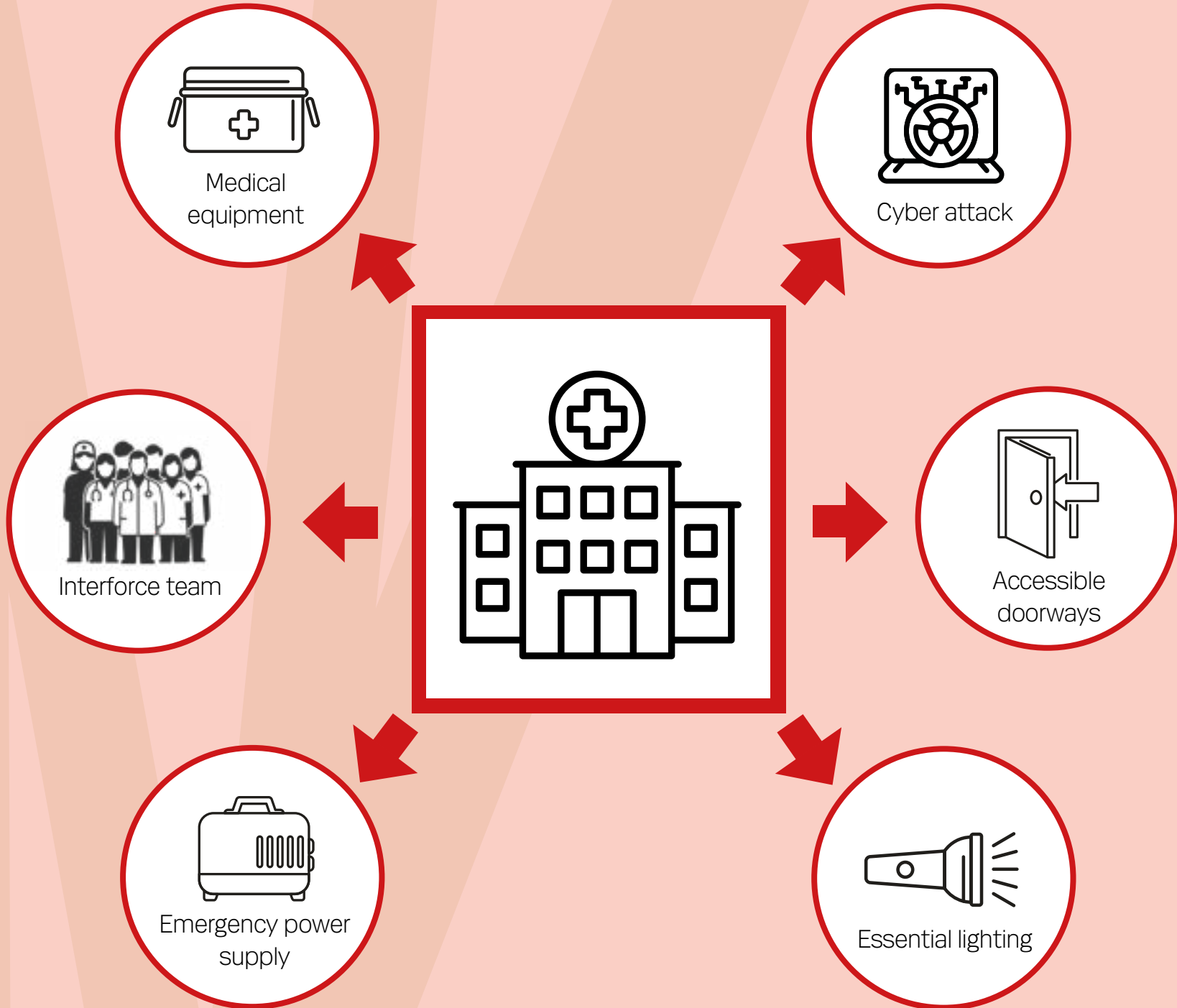
Concrete examples highlight the importance of preparedness. In the event of a power outage, we must ensure that doors can still open, critical equipment remains operational, and essential lighting is available. Similarly, we must maintain adequate supplies to mitigate disruptions, like the recent blockage in the Suez Canal, or the resurgence of a global pandemic. Assessing plausible scenarios based on likelihood and consequence has always been a fundamental practice

for us. However, we recognize that in 2024, new threats emerged, and certain existing risks became more probable. As a critical societal function, the responsibility for preparedness rests solely within our department, the hospital and our Region, we cannot rely on external support, such as from the Danish Armed Forces during a crisis.

For nearly three years, we have been proud members of [Interforce](#), an organization fostering collaboration between the Armed Forces and the civilian sector. This membership reflects our proactive approach to resilience and underscores our commitment to robust preparedness in an increasingly uncertain world.

interforce.dk/eng





FACT
MARY ELIZABETH'S
HOSPITAL

Mary Elizabeth's Hospital is Rigshospitalet's newest construction, set to unify all care for children, adolescents, and pregnant women under one roof by 2027. Designed with an emphasis on patient and family experience, the hospital has been partly funded through private investments, enabling innovative solutions such as flexible patient rooms tailored to various age groups and accommodating families. This pioneering facility aims to balance advanced medical care with a warm, home-like environment for its patients and their families.



As part of the
strategy (see
[1] for details)

Standardized areas
that DON'T have
open doors in them
for more privacy
for the staff



Preparing for a New Era of Paediatric Care

Our senior consultant assoc. prof. Thomas Hjuler, has played a central role as the ambassador between our Department and the new hospital wing, [Mary Elizabeth's Hospital - Rigshospitalet for Children, Teens and Expecting Families](#). With its opening, we introduce a shift in healthcare delivery, bringing professionals to the patient instead of requiring patients to navigate multiple departments, ensuring the calmest and safest journey for every patient. As a paediatric surgical ambassador, he has worked on developing the processes and structures required to support this new model of care.

One of the key challenges has been optimizing the flow of care, particularly when it involves moving entire surgical teams to Mary Elizabeth's Hospital. This process demanded careful planning and consideration of the complex needs of both the staff and patients. Thomas Hjuler has taken part in these efforts, ensuring seamless collaboration across multidisciplinary teams while prioritizing the patient experience. For over a decade, our Department has embraced a playful approach through [Auditory Verbal Therapy \(AVT\)](#) for children with hearing loss, providing invaluable support for the structural transition.

For our Department, the opening necessitates a division of services. Some treatments will now take place at Mary

Elizabeth's Hospital, while other services, like long-term care for children with hearing loss, will remain in our current facilities, where the environment and resources are better suited for their needs. We know that such deliberations require careful consideration, always placing the patient's best interests at the centre of decision-making.

The phased opening of Mary Elizabeth's Hospital has progressed smoothly, with our Department well-positioned for the final stages. We look forward to contributing to a facility that promises to explore new paths to create space for people's and families' lives and needs. With world-class research and expertise from the specialized staff, children, young people, and pregnant women are treated at the highest international level in a safe and homely atmosphere.

Beyond logistical coordination, Thomas Hjuler has also been deeply involved in the cultural and workplace adaptations required for this shift. The holistic, cross-disciplinary nature of care at Mary Elizabeth's represents a significant cultural transformation for healthcare professionals. By leveraging his experience from our Department's recent move to the North Wing (Nordfløjen), he is certain that our team is prepared for this upcoming change and can effectively navigate the challenges and opportunities it presents.

THOMAS HJULER

Thomas Hjuler serves as Associate Professor and Senior Consultant in Pediatric Otorhinolaryngology, Chief Consultant in Head of the Department of Pediatric and Adolescent Surgery at Rigshospitalet, and is Chair of the Danish Society of Otorhinolaryngology, Head and Neck Surgery (DSOOH).

In this capacity, Thomas Hjuler oversees comprehensive in- and outpatient treatment addressing surgical needs across six surgical paediatric disciplines. This includes complex paediatric conditions, including cancer, vascular and craniofacial malformations.

[Video about the Mary project](#)





Education, Collaborations and Innovation

In 2024, our Department has continuously added more education and ensured that our knowledge is being shared while still being on par with current technological development. A few of these projects have involved our consultant, Tobias Todsen.

Two international ultrasound courses were held in 2024, attracting 75 medical professionals from more than 20 different countries. The faculty consisted of the leading ultrasound specialist worldwide, including guest lecturers from Stanford University. These sessions ranged from basic to advanced levels, emphasising skill-building for participants. The courses were organised in collaboration with the [Copenhagen Academy for Medical Education and Simulation](#) (CAMES) for a corporate partner, showcasing the span of our Department's capabilities. These initiatives highlight not only our cross-disciplinary teamwork but also the pivotal role of ultrasound in Head and Neck treatment.

In the past year he was also appointed as course director for a new course about Data and AI in medicine, which will be implemented as part of the new curriculum at the Medical School. This program addresses the growing complexity of modern and future medical practice, where physicians must interpret and integrate the use of many different data sources and new technologies in clinical practice. With the emergence of artificial intelligence (AI) in medicine, these established processes face new challenges. The course aims to equip future physicians

with the skills to determine when and how AI can be effectively applied, ensuring that AI enhances, rather than undermines, clinical judgment and research integrity. To ensure that students will be taught by experts from different areas, researchers from five different institutes at the University of Copenhagen are involved in teaching and curriculum development. The ability to manage cross-institutional collaboration has been critical to the course's success.

Developing a Virtual Reality App for Medical Training is crucial to preparing medical professionals for high-pressure clinical environments, such as the emergency room. This need inspired a VR solution designed by Tobias in collaboration with scientists from the Department of Computer Science at Copenhagen University. The project, conducted at CAMES, demonstrated VR's potential to match traditional training methods in cognitive load and realism while addressing the need for cost-effective, high-quality simulation training. The results were later published, and with funding secured, implementation will soon begin as part of the education of medical students at the Faculty of Health and Medical Sciences. Additionally, there are ideas to explore next-generation T-cell therapies for head and neck cancer, focusing on evaluating new drugs that target late-stage cancers. These "living drugs" represent a paradigm shift, aiming not merely to prolong survival but to eradicate cancer entirely.

TOBIAS TODSEN

In 2024, Tobias Todsen, Head and Neck Consultant, is appointed Chairman of the National Ultrasound Society, marking the first time a specialist in Ear, Nose, and Throat (ENT) medicine has held this prestigious position. This role spans specialties, setting the direction for education, research, and development within diagnostic and interventional ultrasound. This appointment reflects both recognition and growing significance of ultrasound in modern medical practice. Additionally, he was appointed as the Coordinating Associate Professor for the Technical University Hospital of Greater Copenhagen (TUH) at the Centre of Head and Orthopaedics (HOC).

[East Danish Head and Neck cancer LinkedIn](#)



A Busy Research Year in the Audiology Section

In 2024, the Audiology Division at the [Center for Hearing and Balance](#) (CHBC) continued its mission to provide advanced clinical care, foster innovation, and engage with the professional community through knowledge-sharing events and [research initiatives](#).

This year, we hosted the Cochlear Implant Symposium, a gathering that brought together 170 professionals from various sectors, including audiology departments, ENT specialists, local authorities PPR, communication centers, interest organizations, and industry representatives. The program addressed a range of topics, such as new criteria for cochlear implant surgery, advances in the treatment of single-sided deafness, lower surgery age for children (6 months), updates on gene therapy, balance, and auditory verbal therapy, as well as current projects in cochlear implant research. The symposium fostered meaningful exchanges of ideas and practices, both during the presentations and in informal discussions.

We also participated in the PREPARE Symposium, hosted by Mary Elizabeth's Hospital – Riget for Children, Youth, and Pregnant Women. This event emphasized children's right to inclusion and play in hospital settings. Our contributions included presentations on the structured play approach in auditory verbal therapy as part of the treatment for hearing loss, alongside innovative tools like the ["Warble" app](#) for hearing tests, the VR-based "Earnormous" educational tool, and "SoundCubes" for localization training. This focus on play and inclusion aligns with our longstanding commitment to making pediatric audiology both effective and child-centered. We continuously strive to involve patients in our research to deliver PRO data.

At the Nordic Single-Sided Deafness Symposium, our experts shared insights on treatment variations across the region. In Denmark, cochlear implants remain the primary solution for this condition, and discussions highlighted the diverse approaches and outcomes seen

across Nordic countries.

2024 marked a milestone with six simultaneous audiology-focused Ph.D. projects at the center. These projects cover rehabilitation for adult cochlear implant users, gamification in auditory rehabilitation, VR applications for teenagers with hearing loss, comparative outcomes for children with cochlear implants in Denmark and the Middle East, word learning patterns in children with hearing loss, prevalence study of children with cancer and hearing loss and a PhD investigation training of localisation. These efforts reflect our dedication to advancing knowledge and improving outcomes for individuals with hearing challenges.

[CHBC LinkedIn](#)







Advancing Robotic Surgery

In 2024, the [Department of Otorhinolaryngology and Audiology](#) achieved a significant milestone with the acquisition of a cutting-edge surgical robot, made possible through a generous grant from a major foundation by professor Christian von Buchwald. This advanced system represents the next generation of robotic-assisted surgery, offering a transformative approach through its innovative "Single Port" technique.

Unlike traditional methods, the Single Port system enables surgeons to operate using multiple instruments through a single entry point transorally. The angulation and design of instruments enables the surgeon to go further and deeper into the patients with more freedom in movements compared to the previous robotic system. This advancement has the potential to enhance oncological control and reduce morbidity by reducing invasiveness, leading to faster recovery times, less post-operative discomfort, and improved overall patient care.

Over the past year, we bid farewell to our previous robotic system, which had reached the end of its operational lifespan since its introduction in 2013. Transitioning to

the new system required dedicated training and adaptation, but the benefits have proven to be well worth the effort. The new surgical robot has already become an integral part of our practice, particularly in performing transoral robotic surgery (TORS), including radical tonsillectomy, tongue base resection and supraglottic laryngectomies. Additionally, it has opened up new avenues in sleep surgery for conditions such as obstructive sleep apnea (OSA).

The advantages of the new system extend beyond clinical practice. Its sophisticated design, optimized instruments, and advanced visualization capabilities have not only expanded our surgical capabilities but have also enabled new research opportunities, within realtime ultrasound and optical guidance from fluorescent molecules that binds invasive front of cancers. This is one of our major clinical research areas.

Furthermore, the robot now plays a role in our annual clinical training courses, providing a state-of-the-art platform for educating the next generation of surgeons in

minimally invasive techniques. The dual surgeon console solution also offers an excellent possibility for guidance and educations by the senior surgeons improving and shaping tomorrow's experts.

This new technology underscores our commitment to advancing patient care while embracing innovation and contributing to the field's research and educational missions.

[East Danish Head and Neck cancer LinkedIn](#)



Next-Generation Cone-Beam CT Technology for ENT Indications

The research group [Temporal Bone Imaging and Simulation](#) at CHBC, led by clinical research associate professor Dr. Steven Andersen, has initiated a collaboration with an external Danish imaging company through the temporary loan of the "X1" cone-beam CT (CBCT) scanner. This advanced imaging device will be utilized in joint research projects aimed at investigating and enhancing next-generation CBCT, with the goal of making it more suitable and effective for imaging of the ear, nose, and throat (ENT) area.

A key aspect of this collaboration is the possibility for optimization of scanning protocols in close cooperation with the manufacturer. Notably, the X1 scanner features an innovative head-tracking system designed to correct for minor patient movements during scans, thereby significantly improving image quality and diagnostic reliability. This is particularly important for ul-

tra-high-resolution imaging (0.075 mm), which is used for temporal bone imaging.

Ultra-high resolution imaging of the temporal bone is essential due to its complex anatomy and critical functions, including hearing, balance, and facial nerve activity. The temporal bone contains intricate structures such as the cochlea, semicircular canals, ossicles, and the facial nerve, which require detailed visualization to identify anomalies and plan interventions accurately. High-resolution scans are crucial for diagnosing conditions like cholesteatomas or otosclerosis, detecting subtle structural changes, and preparing for delicate surgeries where precision is vital to avoid complications. In research, ultra-high resolution enables the creation of accurate 3D models and simulations, advancing medical techniques and innovations. Additionally, it minimizes artifacts and errors caused by movement, ensuring reliable imaging

for both clinical and research purposes.

In 2024, the group has also significantly expanded its capacity for producing high-quality, rapid, and unique 3D prints for research and training purposes. These prints include models of the temporal bone and paranasal sinuses, which are instrumental in simulating clinical scenarios and advancing surgical techniques. Our 3D printing technician, Kenneth Weiss, plays a crucial role in creating mockups tailored to the specific needs of our researchers. These mockups accelerate progress by providing immediate, practical feedback that aligns with ongoing research demands.

[Temporal Bone Imaging and Simulations Research Group](#)







Predicting Recurrence of HPV in Head and Neck Cancer

In 2024, our [Department achieved](#) significant milestones in the early detection of HPV-positive oropharyngeal cancer recurrence. Detecting recurrences in these cancers has traditionally been challenging due to their anatomical location, subtle early symptoms, and the limitations of standard imaging techniques. These difficulties may implicate delayed diagnoses, reducing the effectiveness of subsequent treatments.

With the introduction of a prospective semi-national study we are now poised to transform how recurrences are identified and managed. This initiative builds on our longstanding efforts in the detection of circulating tumour DNA (ctDNA) and HPV-DNA, a field we have pioneered since 2017 fronted by prof. Christian von Buchwald and ass prof. Christian Grønhøj.

Early diagnosis of recurrence has proven to be invaluable, allowing timely interventions that can improve patient survival and quality of life. By analysing DNA damage patterns in blood samples from patients treated for HPV-positive oropharyngeal cancers, our study aims to link these findings to key patient outcomes such as survival rates, disease progression, and treatment responses. This knowledge paves the way for a transformative era in personalized cancer care.

Future Implications
The ability to predict recurrences and tailor treatments based on individual tumour profiles marks a significant step forward in oncology. This year's advancements underscore the growing potential of ctDNA and HPV-DNA as predictive tools, offering a pathway to revolutionize clinical practices. By integrating these biomarkers into routine care, we aim to enhance early detection, improve patient prognoses, and refine treatments to achieve better outcomes with fewer side effects.

Future Implications

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FACT

HPV-related Head and Neck Cancer

HPV-positive oropharyngeal cancer cases have risen sharply in recent decades and now account for a significant proportion of head and neck cancers globally. Common symptoms include persistent sore throat, difficulty swallowing, and unexplained lumps in the neck. HPV DNA testing complements biopsy and imaging in diagnosis.

Treatment typically involves a combination of surgery, radiotherapy, and occasionally chemotherapy. HPV-positive cases often respond better to treatment than HPV-negative cases. However, approximately 20-30% of patients experience recurrence after initial treatment. Early detection of recurrence through ctDNA and HPV-DNA monitoring has shown promising results in improving outcomes.

[East Danish Head and Neck cancer LinkedIn](#)



Advancing Global Airways Health

Our [Airway Health Department](#) has been deeply engaged in addressing pressing global health challenges related to airway health, with a particular focus on young populations. In collaboration with the [World Health Organization](#) (WHO), we have concentrated our efforts on mitigating the harmful effects of tobacco use, vaping, nicotine consumption, and environmental pollution. These factors represent significant risks to airway health, impacting both younger and older generations, and our work reflects the urgency of these issues.

Through our partnership with [EUFOREA](#) (European Forum for Research and Education in Allergy and Airway Diseases), we have advanced multidisciplinary approaches to prevent and manage diseases affecting the upper and lower airways. EUFOREA's role in uniting experts, researchers, and patient advocacy groups has been instrumental in promoting education of both healthcare professionals and patients as well as research in this field. Notably, our initiatives, such as the development of accessible multilingual Pocket Books, serve as practical tools for healthcare providers and patients,

reinforcing our shared commitment to improving respiratory health outcomes.

One critical area of focus has been the prevention of chronic conditions such as chronic rhinosinusitis (CRS), asthma, and chronic obstructive pulmonary disease (COPD). By addressing the root causes, including exposure to tobacco products, vaping, and pollution, we aim to significantly reduce the incidence and burden of these conditions. Prof. Vibeke Backer, representing our department at WHO meetings, has been at the forefront of these global efforts, advocating for evidence-based interventions and policy changes that prioritize airway health.

Nasal Spray

Another emerging concern is the rising misuse of over-the-counter decongestant nasal sprays, which has led to an alarming increase in cases of rebound congestion. Sales of these products have more than doubled since 2011, with a tripling observed in retail channels, these findings have been carried out by one of our senior sur-

geon's assoc prof. Kasper Aanaes. This trend underscores the need for targeted patient education and robust adverse event reporting systems to prevent misuse and guide appropriate regulatory measures. It is critical to emphasise that nasal spray instructions should be followed rigorously, with usage typically recommended for no more than 10 to 14 consecutive days and only for acute rhinitis, whereas decongestants are not recommended in patients with chronic rhinosinusitis. Failure to adhere to these guidelines significantly increases the risk of adverse effects, including dependency and worsening congestion.

[Global Airways
and DACCESS
LinkedIn](#)





**Det var, fordi jeg havde taget skade
på mine næsemuslinger.**



Motion Sickness

Modern society increasingly exposes individuals to situations that may cause motion sickness, a condition resulting from conflicting sensory inputs. This discord arises between motion detected by sensory systems, such as the inner ear and vision, versus actual bodily movement. Beyond transportation, activities involving computers, mobile phones, screens, and virtual or augmented reality can provoke this condition. Motion sickness serves as a model for understanding dizziness and balance disorders, but its broader implications often go unrecognised in both civilian and military contexts. It is estimated that up to 2/3 of all people may experience significant motion sickness during transportation. Similar mechanisms are at play in many work and leisure scenarios involving screens, even in the absence of physical movement. In such cases, symptoms may diverge from the classical manifestations of nausea, vomiting, dizziness, headache, and pallor, presenting instead as fatigue, unease, reduced alertness, or cognitive impairment. These signs often occur without individuals realising they are part of a motion sickness syndrome, underscoring its underestimated societal impact.

Addressing this challenge, research efforts aim to develop interventions that alleviate symptoms, with pilot studies suggesting relief in at least two-thirds of cases, even among highly susceptible individuals. This work seeks to unravel the complex mechanisms behind motion-induced

nausea, exploring the interplay between the central and intestinal nervous systems, and the cognitive and vestibular functions that underlie this condition.

Motion sickness frequently affects individuals across their lifetimes, whether as discomfort during travel or as "cyber-sickness" from virtual reality experiences. It poses significant challenges in high-stress professions, such as emergency medical services and military operations. For instance, ambulance drivers and flight attendances often endure symptoms that impair their performance and well-being. Effective management can enhance their ability to perform critical tasks without discomfort or disruption. This research also aims to provide non-invasive treatments and predictive diagnostic tools, enabling such professionals to maintain focus and efficiency in demanding scenarios.

A deeper understanding of motion sickness mechanisms could improve quality of life for those affected and contribute to broader insights into dizziness caused by inner-ear and brain disorders. In 2024, a research team joined Clinical prof. Måns Magnusson to advance the study of motion sickness. Their research investigates the role of the inner ear in influencing the gut-brain axis and its contribution to the condition. One project examines whether tightening abdominal muscles can reduce symptoms, with early findings suggesting this simple, non-in-

vasive method may hold promise as a treatment.

Collaborative efforts include creating Virtual Reality environments that reliably induce motion sickness in partnership with [Aalborg University \(AAU\)](#). These tools help researchers better understand the onset and progression of symptoms and test new treatments in both research and clinical settings. Additionally, in collaboration with [DTU Hearing Systems](#), the team is analysing physiological signals such as heart rate, perspiration, and gastrointestinal responses during motion sickness episodes. By decoding these signals, they aim to predict the occurrence and severity of motion sickness, paving the way for improved diagnostics and personalised interventions.

Through these efforts, researchers aspire to deliver simple, effective, and non-invasive solutions to a common yet underappreciated problem, benefiting individuals in travel, virtual environments, and various professional settings.

[Copenhagen Hearing and Balance Center LinkedIn](#)



Collaboration with AAU, DTU and the Establishment of TUH

Our department has long recognized the value of collaboration with leading educational institutions, particularly the Technical University of Denmark (DTU) and Aalborg University South (AAU).

For over a decade, we have worked closely with [DTU Hearing Systems](#) and the team and student around professor Torsten Dau to foster interdisciplinary research and innovation. This partnership has deepened in recent years through shared staff, reflecting our commitment to broad-based research and knowledge sharing.

Additionally, our collaboration with [AAU and the Multisensory Lab](#), with professor Stefania Serafin as lead has united expertise from clinical practice and academia, fostering research and innovation aimed at improving patient outcomes.

Over the years, we have actively contributed to two Clinical Academic Groups (CAGs), with the [BAT-CAG \(Brain and Technology\)](#) in particular fostering collaboration with DTU across regions and sectors to integrate advanced research and clinical practice. These collaborative efforts laid a strong foundation,

allowing us to play a role in the establishment of the [Technical University Hospital of Greater Copenhagen](#) (TUH) in 2024.

In 2023, we welcomed prof. Måns Magnusson as the first clinical professor at DTU and initiated the university's inaugural clinical PhD programs. These efforts, along with our cross-disciplinary collaborations through the CAGs, have paved the way for integrating technical expertise into clinical practice and training future healthcare professionals.

The creation of TUH represents a significant step forward in combining technical and healthcare disciplines. This partnership between DTU and the Capital Region of Denmark reflects a shared commitment to advancing research, education, and innovation to improve patient care and healthcare delivery.

[About TUH](#)



FACT

Uniting Science and Health

The Brain and Technology CAG (BAT-CAG), established in 2021, leverages digital technologies, big data, and AI to improve diagnostics and treatment for neurological and sensory disorders. In collaboration with Danish Technical University (DTU), Region Zealand, and the Capital Region. Our Department has contributed to this initiative, emphasizing hearing, balance, and sensory interpretation through interdisciplinary research.

The Imaging Guided Cancer Surgery CAG (IGCS-CAG) focuses on developing optical imaging technologies that enhance surgical precision by visualizing cancer tissue in real time. In collaboration with the Department of Chemistry at the University of Copenhagen, Region Zealand and the Capital Region, this group has advanced both preclinical and clinical applications, including the implementation of innovative imaging agents in oral cancer surgeries.



TUH

The Value of Including Support Functions in a Surgical Department

As a university hospital with a strong clinical profile and significant responsibilities in research and education, our surgical department greatly benefits from the integration of relevant support functions into our daily operations. While our primary focus is on educating healthcare professionals and delivering world-class patient care, we also believe that the inclusion of support functions fosters valuable knowledge sharing and generates benefits not only for our department but also for the entire hospital.

In 2024, we had the pleasure of having a dedicated legal advisor assigned to our department one day a week. This initiative was introduced in response to an increasing need for legal guidance, particularly in relation to research, AI innovations, and agreements with external partners. Surgical departments operate under complex legal and regulatory frameworks, which can be challenging for healthcare professionals to navigate. Having access to legal expertise ensures compliance with these frameworks while enabling clinicians to focus on their core competencies in treatment and research.

Similarly, our collaboration with a colleague from the innovative procurement team has proven invaluable.

Previously, we encountered challenges where procurement regulations were not considered early in the innovation process, creating obstacles during implementation and scaling. By involving procurement expertise earlier, we are now better equipped to navigate complexities, such as exceptions to tender requirements, and ensure the successful adoption of new solutions.

For years, our Department has benefitted from staff dedicated to supporting innovation, communication, and strategy. In 2024, we successfully integrated additional support into the department, further strengthening our ability to innovate and meet both clinical and research goals effectively.

By embedding support functions such as legal services and innovative procurement into our department, we maximize resource efficiency, facilitate innovation, and contribute to knowledge dissemination across Rigshospitalet. This holistic approach allows us to leverage our expertise as clinicians while creating broader value for the healthcare community.



ANDERS ULRIK
KRISTOFFERSEN

Procurement specialist from the Capital Region, supporting research and innovation by ensuring early alignment with procurement strategies and regulations.

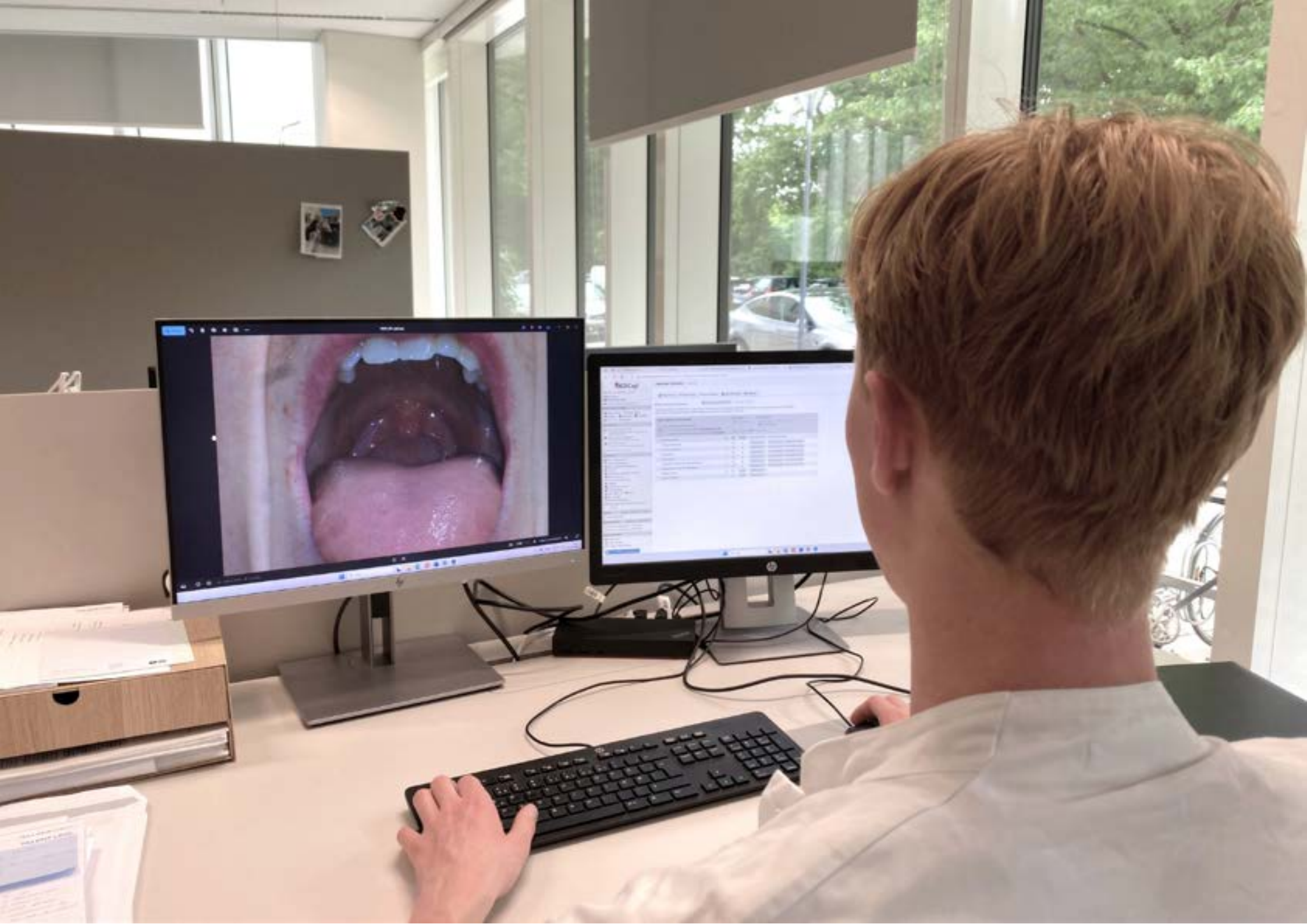


JOHAN MUNK PACKNESS

Legal advisor focused on research compliance, contracts, and data agreements, helping to streamline legal processes for clinical staff.

Artificial Intelligence in Ear, Nose and Throat





AI in Medical Imaging

– do you really need to see the doctor?

2024 was the year we explored the use of pattern recognition in medical imaging. This is a field that attracts substantial research interest. In an ENT Department, we examine patients' ears, noses, and throats daily - it's a natural part of our routine. In this way we are also curious to explore new ways to do this.

We know that 600,000 Danes consult doctors each year for evaluations of sore throats. These consultations primarily take place at general practitioners' clinics. Of the sore throats, only 30% have bacterial infections, while 70% are caused by viral infections. For viral infections antibiotic treatment is without effect. In this way most patients with viral pharyngitis have no need for a physician consultation and medical treatment. This imbalance places significant pressure on our healthcare system.

Over the year, our Department has initiated several research projects involving artificial intelligence. These projects aim to integrate AI into clinical workflows to improve diagnostics and patient care. The project focusing on bacterial throat infections is one of several in this domain, where we also investigate throat abscess, oral- and oropharyngeal cancer.

The idea for this project emerged as a spinoff from a EUREKA funded project in collaboration with an

external Danish company. The spinoff involves short self-recorded video sequences of the throats of both healthy and unwell individuals. The goal is to determine whether a private individual, using a video recorded on their smartphone, can receive an answer to if they need to see a doctor or not.

To train an AI model, we need a large set of images, and we are fortunate to have access to extensive data. In a pilot project we have annotated, segmented, and assessed images, from the videos, to determine whether the throat in question is showing signs of a bacterial infection or not. The next step is solving the challenging task of standardizing the process. This involves determining the ideal angle and settings patients should use to record their videos so that the footage can be effectively utilized in the algorithm we are developing.

The project is led by our Department in collaboration with a multidisciplinary team that includes members from the Technical University of Denmark (DTU), the Emergency Department at Bispebjerg Hospital, the [Center for General Practice, the University of Southern Denmark](#) (SDU), and the emergency medical helpline, 1813. Our department drives the initiative by focusing on innovative methods to collect and evaluate data, en-

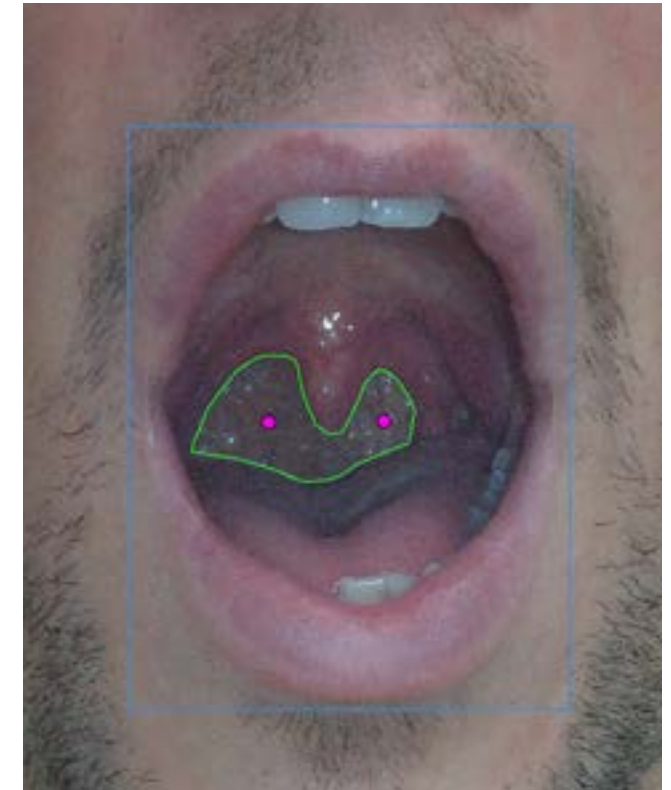


Figure of annotations of the mouth (blue rectangle), oropharyngeal swab area (green polygon), and optimal swab points (magenta dots).

suring the integration of AI technologies into clinical workflows. The aim is to significantly reduce the number of unnecessary medical consultations in the coming years - bringing benefits to both individual patients and the broader healthcare system.

Advancing Sociotechnical AI Integration in Healthcare

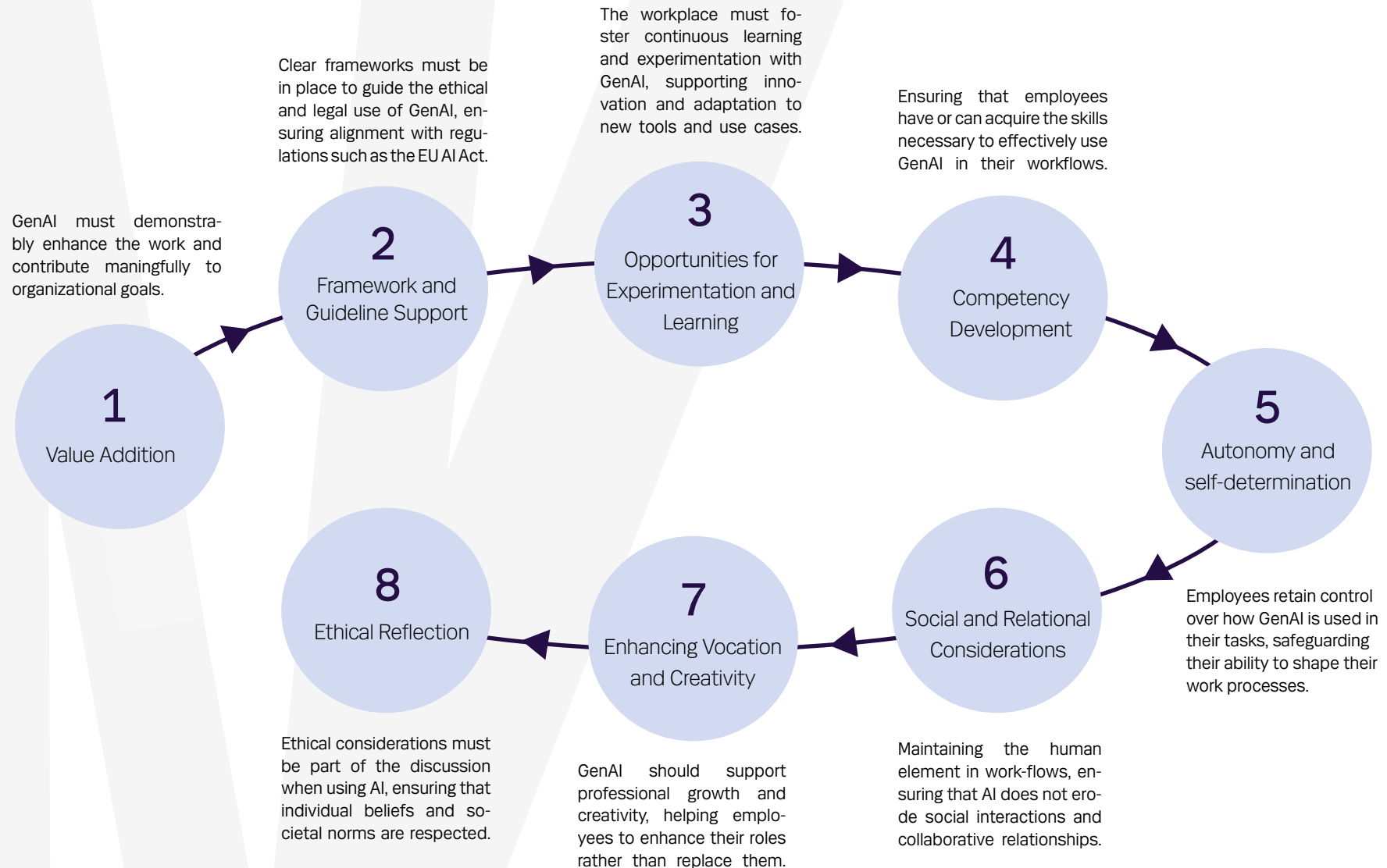
In 2024, our Department focused on advancing the usage of Large Language Model (LLM) technology to enhance patient care and streamline operations. Building on the groundwork laid in 2023, when the Department collaborated with the Danish firm [2021.AI](#) to develop an AI Virtual Assistant for thyroid cancer surgery patients, we have been mindful towards scaling the initiative and embedding sociotechnical reflections into the integration process. This includes refining the processes surrounding technology introduction, assessing value propositions through both traditional metrics and deeper factors like motivation, strategy, and autonomous leadership.

In this endeavour, the Department has been fortunate to collaborate with the researchers and students at the IT University of Copenhagen (ITU) and Copenhagen Business School (CBS), under the guidance of associate prof. Louise Harder Fischer. Their contributions, com-

bined with a strong foundation in sociotechnical principles, have been influential in guiding the responsible integration of AI into healthcare workflows. These principles offered a framework for balancing technological advancement with ethical, organizational, and social considerations, ensuring the human element remains central amid the global excitement surrounding AI.

The work in 2024 exemplifies the power of combining technical expertise with sociotechnical insights. The Department recognizes the ongoing importance of collaborating with companies and universities to embed reflective practices into AI integration in a value-driven manner. This experience underscores the significance of thoughtfully bridging the gap between advanced technology and the people it is designed to serve.

Sociotechnical Principles for Ongoing Reflection



Source: [Louise Harder Fischer, ITU](#)

Our commitment to the Listen to This™ Movement

In 2024, our Department joined the [LISTEN TO THIS™](#) initiative, a global movement focused on raising awareness of hearing loss and cognitive decline, improving access to hearing care, and advancing research on their interconnection. This partnership underscores our commitment to addressing an often-overlooked public health issue critical to individual well-being and societal resilience, especially for aging populations.

LISTEN TO THIS™ unites diverse stakeholders to advocate for policies, promote education, and conduct collaborative research aimed at integrating hearing care into wellness strategies. Despite the significant impact of untreated hearing loss, many cases are preventable or man-ageable with early diagnosis and treatment, which can improve communication and cognitive function.

Emerging evidence highlights a potential two-way link between hearing loss and cognitive decline, though more research is needed to clarify these mechanisms.

Through this initiative, we are dedicated to reshaping perceptions of hearing loss and ensuring hearing health is recognized as vital to overall health and well-being.

Last year we initiated a research project that investigates the importance of identifying and treating hearing loss in patients with memory issues to mitigate its associated risks, such as social isolation, depression, and potentially increased dementia incidence. By emphasizing early and active hearing rehabilitation, the project aspires to enhance patient care and raise community awareness about the critical need for addressing hearing problems in the aging population. While prior research has established an association between hearing loss and cognitive decline through epidemiological studies, the project aims to explore this relationship in clinical populations, including patients from Rigshospitalet's Memory Clinic and Bispebjerg Hospital's Department of Audiology. This is currently the only clinical study of its kind in Denmark.

FACT

Hearing Loss in a Global Perspective

Today, over 1.5 billion people globally experience some degree of hearing loss, and this number is projected to increase to 2.5 billion by 2050. An estimated 430 million people, 5% of the world's population, require hearing care and rehabilitation.

ListenToThis.com





Annual Overview of Doctoral and PhD Defenses

At our Department, we take immense pride in witnessing our researchers crossing the finish line each year, concluding three years of intense research and writing. Often, this journey is undertaken alongside the demanding life of a clinician. At a university hospital, education and research are core pillars, complementing patient care. This year, we are proud to celebrate five remarkable defenses, including one doctoral dissertation.



HPV and Head and Neck Cancer – A Milestone Doctoral Dissertation from Our Department

Doctoral Defense: Christian Grønhøj, February 23, 2024

On February 23, 2024, Consultant Christian Grønhøj successfully defended his doctoral dissertation focusing on head and neck cancer and HPV. The defense, lasting over three hours, showcased exceptional academic rigor and was conducted with great success. Christian had previously defended a PhD on the same subject. His work, built upon extensive research within the department, resulted in nine impactful articles, demonstrating the collaborative efforts of junior and senior researchers.



Sinonasal Lymphomas – Epidemiology, Genetic Profiling, and B-Cell Homing

PhD Defense: Patrick Eriksen, February 1, 2024

On February 1, 2024, Dr. Patrick Eriksen delivered a brilliant defense of his PhD on sinonasal lymphomas. His work, based on three high-impact publications, has contributed new insights into the spread of lymphomas in the nasal cavity and sinuses, offering broader implications for understanding lymphatic dissemination. This research is expected to lead to improved treatments for these rare and severe diseases. Prof. Christian von Buchwald served as his principal supervisor.



Mechanical Conditions in the Ear and Non-Invasive Diagnostic Techniques

PhD Defense: Kristine Eberhard, June 3, 2024

On June 3, 2024, Dr. Kristine Eberhard successfully defended her PhD dissertation, which examined conditions and interventions altering mechanical properties of the ear and their impact on sound transmission. Her research introduced non-invasive mechano-acoustic diagnostic methods, paving the way for better understanding and treatment of auditory conditions. After two years of full-time research, Kristine balanced her clinical work while completing her PhD under the supervision of Prof. Per Caye-Thomasen.



Head and Neck Cancer – From Diagnosis to Rehabilitation: Advances in Patient Care

PhD Defense: Kathrine Kronberg Jakobsen, April 3, 2024

Dr. Kathrine Kronberg Jakobsen added another milestone to her career on April 3, 2024, with her PhD defense. Her research explored innovative approaches to patient care, including salivary gland stem cell transplantation as a potential treatment for xerostomia (dry mouth). Additionally, she investigated the feasibility of diagnosing cancer through a simple blood test. Prof. Christian von Buchwald served as her principal supervisor. Her work represents significant progress in both diagnosis and rehabilitation for head and neck cancer patients.



uPAR-Targeted Molecular Imaging of Head and Neck Squamous Cell Carcinoma

PhD Defense: Mads Lawaetz, November 6, 2024

Dr. Mads Lawaetz defended his PhD on November 6, 2024. His project introduced a novel method for marking cancer cells in the head and neck region, which can be applied in cancer surgery using Rigshospitalet's surgical robot. This groundbreaking work was supervised by Prof. Christian von Buchwald.

Ongoing PhDs

EAR

Adam Omari “Patient-specific 3D-printed models for improving temporal bone and middle ear surgery”

Anders Nøhr “Gamification and certification in the Visible Ear Simulator”

Asher Lou Isenberg “GUT-BALANCE: Investigating the Gut-Brain axis in Motion Sickness”

Beauty Hariz “Outcome of Children who are deaf and hard of hearing with cochlear implant in the Middle East”

Bilal Akram “Clinical cone-beam CT in the diagnosis and surgical treatment of otosclerosis”

Camelia Nabi Saber “Multicenter Study for Enhancing Auditory Brainstem Implant Performance in Neurofibromatosis type 2 Patients”

Colin Barbier “Characterising the effect of compression and reverberation on spatial hearing”

Elisa Skovgaard Jensen “Audio-vestibular function in neuroinfections”

Francesco Ganis “Localisation and emotional detection in speech signals of children with CI”

Kasper Rasmussen “Advances in Cochlear Implantation in Denmark: Investigating Speech Recognition, Tinnitus, Patient-Reported Outcomes, Hearing Preservation, and Spatial Hearing”

Kasper Søndergaard “Specific Training According to BaLance Evaluation (STABLE)”

Line Husted Baungaard “Aural rehabilitation with Cochlear Implants in Adults; CI Candidacy and Auditory Verbal rehabilitation”

Lisbeth Birkelund Simonsen “New applications and test modalities for the Audible Contrast Threshold (ACT) test”

Lone Jantzen “Auditory late effect in CCS”

Louie Rogalla “Automating diagnostics in BPPV”

Mats Daniel Rekswinkel “Investigating an objective and clinically oriented measurement paradigm based on cortical responses to assess speech discrimination”

Nete Rudbeck Kamper “TeenHear - timely and relevant audiology for adolescents with hearing loss”

Pernilla Kjær Andersen “Clinical evidence for more ecologically valid assessments of hearing”

Peter Trier Mikkelsen “Advancing virtual reality temporal bone simulation for patient-specific simulation and mixed reality perioperative guidance”

Quirin Mühlberger “Individualization of binaural processing in hearing aid and cochlear implant users”

Signe Wischmann “Gamification in auditory rehabilitation”

NOSE

Anne-Sophie Homøe “Effect of mepolizumab and FESS surgery compared with mepolizumab alone in patients with CRSwNP and signs of Type-2 inflammation – 6 months follow-up of a randomized controlled trial”

Christian Korsgaard Pedersen “Biological treatment of severe nasal polyposis in Denmark”

Christiane Holbæk Haase “Adherence to local steroid in Global Airways – importance of double disease and the relationship between steroid intake and the impact on the endocrine axis, bone density, and bone structure”

Ditte Gertz Mogensen “Post-COVID-19 Olfactory Dysfunction: Patient Characteristics, Impact on Quality of Life, and the Effect of Olfactory Training”

Elizabeth Stevens “Tapering of Biologics in CRSwNP”

Jens Even Tidemandsen “Change in physical activity, lung function, airway inflammation and airway hyperresponsiveness after treatment with mepolizumab and FESS surgery compared with mepolizumab alone in patients with CRSwNP– 6 months follow-up of a randomized controlled trial”

Mads Guldager “Mastering endoscopic sinus surgery”

Marie Høxbro “Optimization of treatment in patients with CRSwNP with FESS only. New appendix FESS only (without mepolizumab)”

HEAD AND NECK

Amalie Hartvig Pall Posselt "Novel ultrasound techniques to improve diagnostic work up in the outpatient clinic"

Amanda Louise Fenger Carlander "Mesenchymal stem cells for radiation induced hyposalivation and xerostomia in previous head and neck cancer patients (MESRIX-III)"

Amanda Øster Andersen "Optical molecular imaging in head and neck surgery"

Carl Frederik Haugaard "Wireless electroporation in HNSCC"

Daniel Julius Lauritzen "Improving treatment Outcomes in Oral Cancer Surgeries with intraoperative Surgeon-performed ultrasound"

Joachim Hansen "Intraglandular treatment with mesenchymal stem cells in patients with xerostomia due to Sjögrens syndrome"

Kasper Daugaard Larsen "Improving the diagnostic work up of thyroid nodules: Exploring new biopsy techniques and Proteome profiling"

Martin Garset-Zamani "Transoral ultrasound to improve diagnostic work-up of oropharyngeal cancer"

Nina Buhl Sannino-Greve "Advancing Diagnostic and Surgical Outcomes in Oropharyngeal Cancer: The Role of Ultrasound in Optimizing Patient Care"

Signe Buhl Gram "Heterogeneity in Head and Neck Squamous Cell Carcinoma – impact on treatment and follow-up"



Publications 2024

THESIS

Doctoral Thesis

HPV and Head and Neck Cancer
Christian Grønhoj, Feb 2024

PhD Thesis

Sinonasal Lymphomas – Epidemiology, Genetic Profiling, and B-Cell Homing
Patrick Eriksen, Feb 2024

Head and Neck Cancer – From Diagnosis to Rehabilitation: Advances in Patient Care
Kathrine Kronberg Jakobsen, Apr 2024

Mechanical Conditions in the Ear and Non-Invasive Diagnostic Techniques
Kristine Eberhard, Jun 2024

uPAR-Targeted Molecular Imaging of Head and Neck Squamous Cell Carcinoma
Mads Lawaetz, Nov 2024

EAR

3D-printed temporal bone models for training: Does material transparency matter?
Frithioff, Andreas; Weiss, Kenneth; Senn, Pascal et al. I: International Journal of Pediatric Otorhinolaryngology, Bind 184, 112059, 09.2024.

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