

Annual Report 2019

SATC center

Department of Surgery

Odense University Hospital

Svendborg Hospital

Region of
Southern Denmark

Table of contents

Preface.....	3
SATC Center organization	5
Education and Learning.....	6
EndoConf.....	7
Clinical Excellence.....	8
CICA	8
AI & Polyp recognition.....	9
Research.....	9
Database.....	11

Preface

The SATC Center, Department of Surgery, OUH

The SATC Center (SATCC) is embedded in the unit for Neoplastic Colorectal Research, Department of Surgery, Odense University hospital, Svendborg Hospital. Since the beginning, six years ago, the center has developed in every aspect. After 2018 (a year for consolidation), SATCC has developed in the areas described at its foundation i.e. development of a “National Reference Centre” for advanced adenomas and early colorectal cancer (in Danish: Store Adenomer og Tidlige Cancere i Colon og rectum” – SATC). The activities are described as:

Learning and
Education

Clinical
Excellence

Research

The primary purpose of the learning center is to achieve a uniform and high-level standard for treatment of advanced adenomas and early colorectal cancer in the Region of Southern Denmark. Consistent application of the state-of-the-art treatment principles throughout the region could reduce the number of major surgical procedures significantly. Achieving the full clinical gain of recent years' breakthroughs requires intensive efforts to make the guidelines generally known and to increase the number of endoscopists trained in Endoscopic Mucosa Resection (EMR). This is a prerequisite for spreading the principles and competences regionally on a voluntary basis. Furthermore, it is important to establish and develop the methods existing and for a further expansion of the indication areas for organ-preserving treatment

Clinical Excellence:

Database hosting is a natural element of continuous quality improvement of clinical activity and significant efforts were invested in the updating of the EMR - ESD and TEM Database. The aim is to include new parameters necessary for further advancement and updating of the quality of our clinical activity.

The Endoconf System is our own invention. It enables real time communication as well as, transfer of images and videos from ongoing endoscopies to experts in another hospital in the region for immediate decision and avoidance of repeated colonoscopies by the expert centre. The Endoconf System has been the subject of great interest.

For a year now, we have had the benefits from working together with our associate Professor and Chief Consultant Geerard Lucien Beets – head of the Department of Surgery, Netherlands Cancer Institute, Amsterdam. His main research is in the area of non-surgical treatment of colorectal cancer, e.g. Watchful Waiting.

Accordingly, the SATCC has huge expectations for the collaboration with both our Associate Professors; Professor Beets and Professor Robert J. C. Steele from Dundee.

It has become increasingly difficult to distinguish between the research in our unit, which is SATCC research and which is not. We have previously defined SATCC research as research funded by the SATCC grant, but the external funding of our unit has increased significantly and has amounted to 11.5 mio kr. during the last two years. We have therefore redefined SATCC to include all research in the area of advanced adenomas and early cancers. More than 20 scientific papers have been published in the last two years within this area; two PhD students have submitted their theses for review, and further one student will do so within a few months. Last but not least, three large international clinical trials are under preparation to start in 2020.



Clinical Head of SATCC Professor Gunnar Bastrup



Educational Head of SATCC Consultant Niels Buch

SATCC Organization

SATCC is located in the House of Research (Forskningens Hus), Department of Surgery, OUH Svendborg Hospital, Baagøes Allé 15, entrance 41, 5700 Svendborg, Denmark.

Department of Surgery Management

Executive Consultant Claus Christian Vinther

Head Nurse Susanne Barren

SATCC Secretariat

Professor Gunnar Baatrup, Director of Research

Consultant Niels Buch, Head of Centre in area of clinical development / courses

Education Secretary and Responsible for Communication Lene von Fintel Sostack

Staff Doctor Anders Høgh

Project Nurse Anja Wulle

Project Nurse Mette Lundwald Rasmussen

Student Assistant Eva Marie Huulvei Plantener

Student Assistant Anne-Line Volden Havshøi

Student Assistant Mie Kruse Wollesen

External Advisors

This year we changed the setup of our external advisors group. Consultant Søren Meisner was affiliated to our unit. Søren Meisner is a great supplement and is an acknowledged surgeon with a broad national and international network. He will help to ensure the level of excellence of our courses as well as supporting the website.

Regional Working Group

A regional working group, consisting of specialist doctors from each of the specialist units in the region's other hospitals, has been formed. The working group's task is to pave the way for regional prioritisation and coordination of the centre's activities, including the preparation of education programmes/concepts.

Executive Consultant Claus Christian Vinther heads the working group, which is assisted by the secretariat.

Advisory Board

Additionally, the centre has an Advisory Board, which provides advice and sparring on visions, strategies, and professional matters within the core area. Members of the Advisory Board:

Claus Duedal Pedersen, Chief Consultant, Dept. of Clinical Development, OUH University Hospital, Svendborg Hospital.

Birger Endreseth, Trondheim, Surgical Clinic, St. Olav's Hospital, Norway.

Deidre Mc Namara, Associate Professor, Head of dept. Clinical Medicine, Tallaght Hospital, Trinity College Dublin.

Professor Regina Beets-Tan, Dept. of Radiology, The Netherlands Cancer Institute, Amsterdam.

Activity 1: SATCC Education and Learning

Again this year, we have held courses for both doctors and nurses. Thanks to the grant, employees of the Region of Southern Denmark are exempted from the course fee.

SATCC courses 2019:

1. Endoscopic Mucosa Resection (EMR); Module 1 (The fundamentals) concerning management of early, small colorectal cancers and advanced polyps.
2. The advanced EMR course, Masterclass, Module 2.
3. Professional Communication; - intensive and dedicated education in the field of patient communication and nursing care of colorectal cancer patients.
4. Masterclass Course in transanal and transrectal Ultrasonography (TRUS)
5. Endoscopic removal of large polyps and early cancer. Course for assisting nurses EMR/ESD/TEM

Symposias

SATCC & DCCC Symposium - Individualized prevention of colorectal cancer (Individuel forebyggelse af kolorektal cancer) was held in October 2019. The main theme of the day was how we become better at preventing colorectal cancer? It was a successful day, where experts discussed different angles of prevention including lifestyle, pharmaceutical prevention and biomarkers. The aim of the symposium was to form a networking group of dedicated experts, whose primary task is to ensure collaboration across sectors.

The networking group has already started their work ensuring the collaboration and will continue their work years to come.

9. December 2018 - Endoscopic Resection of Colorectal Neoplasia (EMR). Module 1: The Fundamentals. Location: Best Western Hotel, Svendborg.

Endoscopists from home and abroad shared a day full of theory, but also hands on workshops. Live transmission of polyp resections from The Endoscopy center, Svendborg Hospital. The participants were mainly from DK , but additionally some from as far away as Iceland and Finland.

25.-26. February 2019 - Endoscopic Resection of Colorectal Neoplasia (EMR). Module 2. Location: House of Research, OUH svendborg Hospital.

A two-day course that prepares endoscopists to overcome challenges, gain confidence, and demonstrate their “readiness” to perform EMR. The course is designed to specifically teach standardised knowledge and motor skills in colo-rectal EMR. Enrollees participated in a half-day of detailed introduction to EMR and a one-day of intensive, standardised, hands-on training.

14.-15. November 2019 - Masterclass Course in Transanal and Transrectal UltraSonography. (TRUS) Location: Best Western Hotel Svendborg. The course was held for the fifth time. Both national and international experts gave lectures in basic anal and rectal anatomy, as well as in diagnostics concerning fistulas, abscesses, sphincter defects, benign and malignant polyps, and rectal cancer. Furthermore, on day two, there were live sessions with endoscopic and ultrasonographic examinations.

Besides hosting the courses on location in Svendborg, we delivered several presentations at meetings both in Denmark and abroad, promoting the SATCC and its field of interest.

One new activity planned through the year is to provide the region with 2 -3 mandatory courses in practical colonoscopy skills. This was asked for to increase the quality of the screening program, but will be covering all colonoscopy activity including diagnostics and follow up. A beginner’s course for younger doctors with experience from about 50 colonoscopies has been designed and is ready to launch. A course for experienced endoscopists to ensure a state of the art quality throughout the region has also been designed and will start in 2020. It will be the responsibility of heads from the 5 surgical departments in the Region of Southern Denmark to ensure that all colonoscopists attend the course. It is expected from experience in other regions, that this will increase the polyp detection rate, reduce discomfort induced by the procedure and ensure a uniform treatment of high quality in the region.

Activity 2: EndoConf

EndoConf is a real-time audio-video-link system between the endoscopy room and the receiving part, the specialist endoscopist, who is on duty and will receive the EndoConf calls on a mobile tablet. The system was invented by the SATCC, and developed in collaboration with the IT department at OUH. Both patients and the primary endoscopist as well as the medical staff at the expert center confirm that the system is working well and offers a solution, which means higher confidence in strategy planning of the treatment of pathologic findings. The EndoConf system is now routinely used, since the summer 2019.

We experience the system is working well and fulfill our expectations. In average there has been 1 live EndoConf conference every day for the last 9 month. Technical aspects are solved and live contact to the expert endoscopist is established within 3 minutes.

The EndoConf System has been the subject of great interest. Especially endoscopists in the private sector are interested in the possibility of the direct conference possibility which this system offers. This

idea may represent a future area of development. Though, we still need to address the IT challenges to communicate with vulnerable data through the firewall of the Region of Southern Denmark's Network. This is necessary if the EndoConf system connects between the private endoscopists and our regional expert center.

The EndoConf system is ready to be implemented at the other hospitals / endoscopy units in the Region of Southern Denmark. The experience from implementing the EndoConf system in Denmark and possibly the first in Scandinavia is planned to be addressed orally and written.

Activity 4: SATCC Clinical Excellence

As described above, an accelerated development of the clinical excellence in the Department of Surgery has now been taking place for 3-4 years, since the first grant from the Danish Cancer Society. We have further expanded the tracks that were set out then.

The SATCC grant is not intended to contribute directly to this development, but the SATCC activity depends on a strong professional environment, and the department management (Department of Surgery, OUH) has contributed to strengthening the quality of the clinical activity. On a national level, we are already in the lead concerning activity level, number of dedicated people, and number of publications.

First and foremost, we have upgraded equipment and specialist competences in a group of dedicated doctors and nurses. We are working to organizationally strengthen the endoscopic activity by placing it under the responsibility of a dedicated specialist.

Activity 5: CICA CENTRE

Late 2019 the research unit at department of Surgery at Svendborg Hospital, applied for - and achieved grants and acceptance for establishing a Southern Danish Regional center of excellence. The Centre is called CICA, Centre for Implementation of camera CAPsule endoscopy. The aim is exploring and developing the area of Capsule Endoscopy, within a variety of different clinical indications. In collaboration with several partners, the centre has intentions to investigate existing and new fields where the benefits of AI (artificial Intelligence) if capsule endoscopy or related techniques, could be a part of a clinical solution. The main interest and primary aim is to develop more gentle and cautious methods for gastrointestinal examination and "intelligent tools" for diagnostic purpose.

An opening Symposium in January 2020 was planned revealing aims for further development, collaborative intentions and actual status.

The CICA Centre is not an integrated part of SATCC. It is an individual centre of excellence with research and method development in areas of interest quite similar or close to the SATCC, and the centre is located in the same buildings and hosted by the same team.

Activity 6: AI and polyp recognition

In 2019 SATCC, Maersk McKinney Institute and Corporate Health went on doing further research and software development in computerized polyp detection and evaluation. Based on a large amount of polyp photos, computer learning accumulates a variety of characteristics and uses it for recognition. The aim is to fully develop a camera capsule which can both differentiate between normal tissue and an adenomatous polyp and instantly give detailed information about size and adenoma type/ benigne – maligne.

Furthermore a traditional analysis of the huge amounts of information from a single camera capsule colonoscopy is both time consuming and expensive when performed by a person. Using AI (Artificial Intelligence) for this procedure could reduce manpower, time and costs. When fully developed, it even might be better due to the computer not “loosing concentration” or getting tired. The software will be used for both camera capsules endoscopy as well as conventional colonoscopy.

In 2020 the center will test AI solution (Medtronic) connected with ordinary colonoscopy.

Activity 7: SATCC Research

The SATCC acts as a principal investigating centre and as a collaboration hub in a number of trials with a main focus on early rectal cancer and significant polyps of the colorectum. The SATCC acts as a national catalyst in a growing area of early detection and organ preserving treatments of the colon and rectum.

The STAR TReC phase 2 trial is an ongoing international randomized study assessing the safety of chemo radiotherapy and adjacent local excision of early cancers in the rectum. The study is about to finish inclusion and is not far from launching the phase 3 trial, incorporating a “patient preference” design to accommodate and facilitate the patients’ wish to sustain their rectum. Interim results are promising.

The project “DETECT” is a study testing the applicability of Dual Energy CT for stage assessment of rectal cancer. Dual energy CT is an advanced radiomic tool aiding the clinicians in tissue differentiation based on unique quantitative measurements. We are testing its accuracy in assessing lymph nodes and tumour regression grade after chemo radiation therapy for rectal cancer to establish a potential route of deferral from major surgery to local excision or an active surveillance based on complete tumour disappearance after chemo radiotherapy.

SATCC is a collaborator of the international watch and wait database, contributing to the very valuable data obtained for rectal cancer patients with a complete disappearance of their rectal cancer after chemo radiotherapy, the so-called “watch and wait” programme.

SATCC is the holder of a large database recording parameters for all local excisions of rectal tumours and endoscopic resections of colonic lesions. Data from the database has resulted in a number of publications and national guidelines to aid in the management of significant polyps and early colorectal cancers.

VORATES is a trial investigating the role of postoperative chemo radiotherapy for locally resected rectal cancers. Evidence is building towards a general ethos of rectal preservation instead of major resections for early rectal cancers. VORATES is a randomized study randomizing between postoperative chemo radiation and active surveillance of locally excised rectal cancer.

Publication activity based on the above counts 10 peer reviewed papers in international journals, approx. 10 papers in the pipeline, as well as 3 national guidelines in the period 2018-2019.

Publications from SATCC 2019:

Screening individuals' experiences of colonoscopy and colon capsule endoscopy; a mixed methods study.

Thygesen MK, **Baatrup G**, Petersen C, Qvist N, Kroijer R, Kobaek-Larsen M. Thygesen MK, et al.

Among authors: **Baatrup G**. Acta Oncol. 2019;58(sup1):S71-S76. doi:

10.1080/0284186X.2019.1581372. Epub 2019 Mar 1. Acta Oncol. 2019. PMID: 30821625

Dietary Polyacetylenic Oxylipins Falcarinol and Falcarindiol Prevent Inflammation and Colorectal Neoplastic Transformation: A Mechanistic and Dose-Response Study in A Rat Model.

Kobaek-Larsen M, **Baatrup G**, KhataeiNotabi M, El-Houri RB, Pipó-Ollé E, Christensen Arnsfang E, Christensen LP. Kobaek-Larsen M, et al. Among authors: **Baatrup G**. *Nutrients*. 2019 Sep 14;11(9):2223. doi: 10.3390/nu11092223. *Nutrients*. 2019. PMID: 31540047 Free PMC article.

[Addressing priority challenges in the detection and assessment of colorectal polyps from capsule endoscopy and colonoscopy in colorectal cancer screening using machine learning.](#)
Blanes-Vidal V, **Baatrup G**, Nadimi ES.

[\[The effect of primary colonoscopy versus follow-up colonoscopy in screening for colorectal cancer\].](#)

Krøijer R, **Baatrup G**. Krøijer R, et al. Among authors: **Baatrup G**. *Ugeskr Laeger*. 2019 Feb 11;181(7):Vo7180521. *Ugeskr Laeger*. 2019. PMID: 30777594 Review. Danish.

[European Society of Coloproctology Core Outcome Set for haemorrhoidal disease: an international Delphi study among healthcare professionals.](#)

van Tol RR, Kimman ML, Melenhorst J, Stassen LPS, Dirksen CD, Breukink SO; Members of the Steering Group. van Tol RR, et al. *Colorectal Dis*. 2019 May;21(5):570-580. doi: 10.1111/codi.14553. Epub 2019 Feb 8. *Colorectal Dis*. 2019. PMID: 30628177

[Patient-reported minor adverse events after colonoscopy: a systematic review.](#)

Steffenssen MW, Al-Najami I, **Baatrup G**. Steffenssen MW, et al. Among authors: **Baatrup G**. *Acta Oncol*. 2019;58(sup1):S22-S28. doi: 10.1080/0284186X.2019.1574979. Epub 2019 Feb 20. *Acta Oncol*. 2019. PMID: 30784355

[Patient-reported complications related to colonoscopy: a prospective feasibility study of an email-based survey.](#)

Steffenssen MW, Al-Najami I, Zimmermann-Nielsen E, **Baatrup G**. Steffenssen MW, et al. Among authors: **Baatrup G**. *Acta Oncol*. 2019;58(sup1):S65-S70. doi: 10.1080/0284186X.2018.1535188. Epub 2018 Dec 7. *Acta Oncol*. 2019. PMID: 30523730

[Reproducibility and accuracy of visual estimation of polyp size in large colorectal polyps.](#)

Buijs MM, Steele RJC, Buch N, Kolbro T, Zimmermann-Nielsen E, Kobaek-Larsen M, **Baatrup G**. Buijs MM, et al. Among authors: **Baatrup G**. *Acta Oncol*. 2019;58(sup1):S37-S41. doi: 10.1080/0284186X.2019.1588990. Epub 2019 Mar 21. *Acta Oncol*. 2019. PMID: 30897992 *Clinical Trial*.

Differentiation between malignant and benign rectal tumors by dual-energy computed tomography - a feasibility study.

Al-Najami I, Mahmoud Sheta H, **Baatrup G.**Al-Najami I, et al. Among authors: **Baatrup G.** Acta Oncol. 2019;58(sup1):S55-S59. doi: 10.1080/0284186X.2019.1574404. Epub 2019 Feb 15. Acta Oncol. 2019. PMID: 30764692

Time to colonoscopy, cancer probability, and precursor lesions in the Danish colorectal cancer screening program.

Kaalby L, Rasmussen M, Zimmermann-Nielsen E, Buijs MM, **Baatrup G.**Kaalby L, et al. Among authors: **Baatrup G.** Clin Epidemiol. 2019 Jul 30;11:659-667. doi: 10.2147/CLEP.S206873. eCollection 2019. Clin Epidemiol. 2019. PMID: 31440102 Free PMC article.

Activity 6: SATCC Database

The database has been evaluated and intensely discussed in 2018 due to the fact that the basis and support for the existing platform will “expire” within a relatively short period of time, i.e. probably 4-5 years. Additionally, the difficulties in recruiting new departments in the common data registration seem to increase when presenting to local hospitals’ IT departments. The basic platform is actually relatively unknown among the supportive IT departments, although it is completely safe and well documented. Due to the declining use of this platform in general, we foresee problems with long-term supportive functions and thus difficulties in maintaining both quality and further development. Therefore, the planned update of the database might be combined with a fundamental new platform i.e. Open Red Cap, which is a wellknown system to every hospital department in Denmark, and to the supportive IT departments. At present, Vejle and Esbjerg in the Region of Southern Denmark as well as Aarhus are actively joining the database reporting EMR and ESD procedures. The primary goal is a complete reporting within the Region of Southern Denmark for all locally excised early cancers and large polyps, including follow-ups. The second goal is to become a nationally accepted database with secretary function and basis in the Department of Surgery OUH, Svendborg (House of Research). The research in this field is expected to redefine the used surgical / endoscopic methods, including validation of new minimally invasive methods such as TEM-ESD and eFTR (endoscopic Full Thickness Resection).