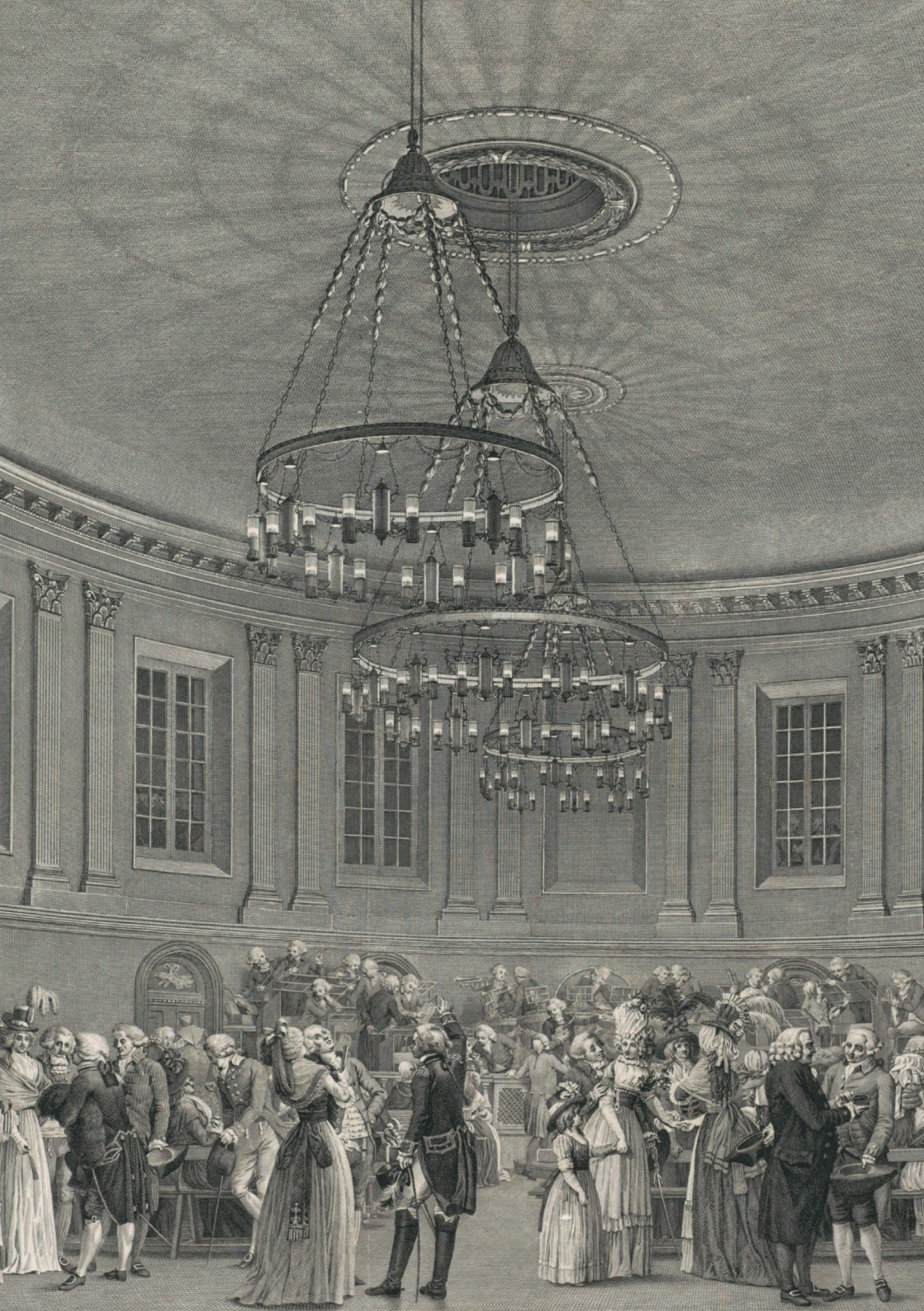
Amsterdam UMC
Universitair Medische Centra

wetenschapsdag

vrijdag 13 oktober
Felix Meritis
Amsterdam

2023

PROGRAMMA- EN ABSTRACTBOEK



Voorwoord

Hartelijk welkom op de 2023 Wetenschapsdag van Regio Amsterdam. Een dag die wederom gevuld zal zijn met innoverend wetenschappelijk werk, inspirerende gedachtewisselingen en verbinding tussen alle leden, jong en oud, van Regio Amsterdam.

Dit jaar zal de Wetenschapsdag plaatsvinden in Felix Meritis. Een genootschap dat werd opgericht in 1777 door de gegoede burgerij van Amsterdam. Het hoofddoel van het genootschap was om '… door het beoefenen van kunsten en wetenschappen verstand en deugd aan te kweeken, en het gezellig verkeer onder de Leden te bevorderen.' Nog zeer toepasselijk drie en een halve eeuw later. Gezelligheid, saamhorigheid en vriendschap zijn immers de sleutel voor succes, ongeacht of het een professie of sport betreft. Interessant om te beseffen dat Felix Meritis mede werd opgericht, omdat Amsterdam in de 18e eeuw haar culturele voorhoedepositie aan het verliezen was. De vernieuwing kwam vooral uit Haarlem waar invloedrijke genootschappen en tijdschriften werden opgericht. Dit onderstreept het belang van de regio dan wel het netwerk. En ook dat is aan de orde van de dag. Samenwerken over de grenzen van zorgorganisaties heen is van vitaal belang voor goede en betaalbare zorg.

Felix Meritis was tot eind 1800 de belangrijkste muziekzaal van Amsterdam waar onder andere Robert Schumann, Camille Saint-Saëns en Johannes Brahms optraden. Hun namen prijken op de balustrade van de grote zaal van Felix Meritis en vormden de muzikale entourage van de Wetenschapsdag.

De Wetenschapsdag 2023 is het resultaat van de enthousiaste inzet van alle leden van de Wetenschapscommissie, die het afgelopen jaar met passie en toewijding een prachtig programma hebben gerealiseerd. Namens Regio Amsterdam onze hartelijke dank!

Jaap Bonjer

Welkomstwoord van de commissie

Dit jaar heten wij iedereen welkom in het prachtige Felix Meritis voor de regiobrede Wetenschapsdag Chirurgie. Een dag die onze prachtige Regio A weet te verbinden, een dag gewijd aan een afwisselend en inspirerend wetenschappelijk programma en grensverleggend onderzoek vanuit ziekenhuizen uit de hele regio.

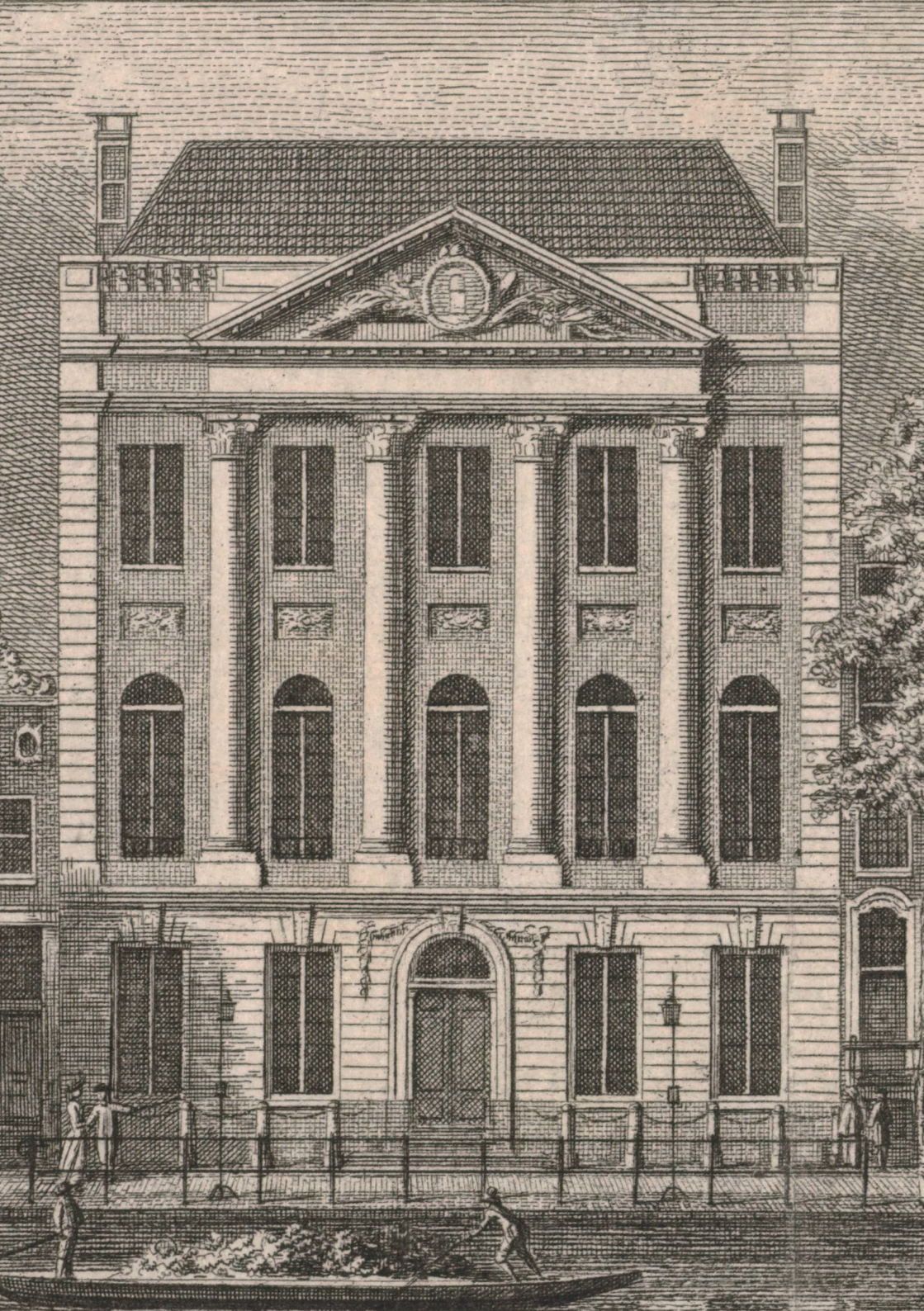
Een dag waarin de regio bij elkaar komt en nieuwe kennis wordt gedeeld. Laat je inspireren door de meest recente ontwikkelingen in de chirurgie, binnen en buiten uw eigen vakgebied. Ook zijn er vele partners betrokken, welke allen vol enthousiasme hun laatste innovaties met ons willen delen, dus vergeet vooral niet om hier een bezoek te brengen in een van de pauzes.

De dag zal plaatsvinden in het Felix Meritis ('Gelukkig door verdiensten'), voorheen een internationale ontmoetingsplaats voor kunstenaars, wetenschappers en culturele ondernemers. Dit historische en inspirerende gebouw biedt een passende setting voor de Wetenschapsdag Chirurgie.

De plenaire sessies zullen dit jaar in het teken staan van 'Wetenschap & Media'. De rol van media in de medische sector is onmiskenbaar, het biedt een platform voor het delen van medische kennis en innovaties met een wereldwijd publiek. Maar welke verantwoordelijkheden heb je als arts (in de media) en hoe vind je als medisch expert je rol in de huidige en snel veranderende mediadynamiek? We kijken ernaar uit om samen met jullie een inspirerende discussie aan te gaan over dit actuele onderwerp.

We kijken enorm uit naar deze inspirerende dag en hopen dat iedereen er enorm van zal genieten.

De organisatie Wetenschapsdagcommissie 2023



Organisatie & namen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Frank Bloemers


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Rutger-Jan Swijnenburg


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Dagprogramma

Tijd	Sessie	Locatie	Verdieping
08:30-09:00	Inloop	Restaurant	0
09:00-09:15	Welkomstwoord Prof. Bonjer	Concertzaal	0
09:15-10:00	Openingssessie: Lopend onderzoek in de regio Amsterdam	Concertzaal	0
10:00-10:30	Keynote Lecture Diederik Gommers	Concertzaal	0
10:30-11:00	Pauze 1: koffiepauze	Restaurant Zuilenzaal	0 1
11:00-12:00	Sessie 1a: Viatris: Pantastische Pa ncreas-Perikelen Sessie 1b: Ticks, Checks and Balances Sessie 1c: We Zullen Doorgaan Sessie 1d: Een Goede Fundering Voor de Chirurgische Lering	Concertzaal Teekenzaal Shaffyzaal Huslyzaal	0 3 2 5
12:00-13:00	Pauze 2: lunchpauze	Restaurant Zuilenzaal	0 1
13:00-13:45	Sessie 2a: Den Nederlanden - en Daar Voorbij Sessie 2b: Classificaties: van Chaos naar Categorie Sessie 2c: Laat Me, opereren! Sessie 2d: Laparos: het Ontwerp Binnenste Binnen Keren	Concertzaal Teekenzaal Shaffyzaal Huslyzaal	0 3 2 5
13:45-14:15	Pauze 3: koffiepauze	Restaurant Zuilenzaal	0 1
14:15-15:00	Sessie 3a: Holl(t)en of Stilstaan Sessie 3b: Chirurgie voorbij de scalpel Sessie 3c: Zing, Vecht, Huil, Bid, Lach, Werk en Bewonder Sessie 3d: Architecturale Hoogstandjes en Chirurgische Laagstandjes: Een Kijk op Complicaties	Concertzaal Teekenzaal Shaffyzaal Huslyzaal	0 3 2 5
15:00 -15:15	Pauze 4: Wisselpauze		
15:15-16:00	Panel discussie	Concertzaal	0
16:00-16:45	Best abstract sessie	Concertzaal	0
16:45 -17:10	Afsluiting en fotomoment	Concertzaal	0
17:00-19:30	Borrel	Restaurant	0

Regio A

1 Amsterdam UMC
Universitair Medische Centra

2 Noordwest Ziekenhuisgroep

3 tergooimc

4 Spaarne Gasthuis

5 Rode Kruis Ziekenhuis
Medisch Specialistische Zorg

6 olvg

7 DIJKLANDER ZIEKENHUIS

8 zaans medisch centrum

9 Flevoziekenhuis almere

10 ANTONI VAN LEEUWENHOEK
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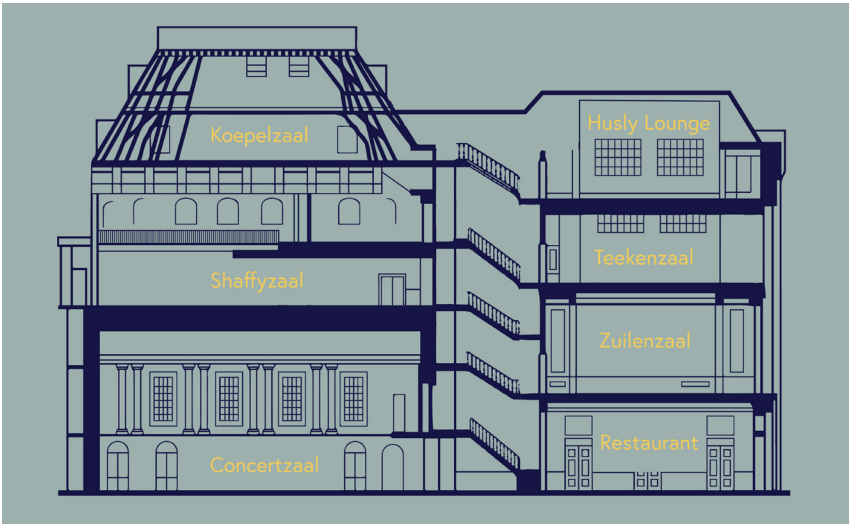
Zalenoverzicht
Felix Meritis



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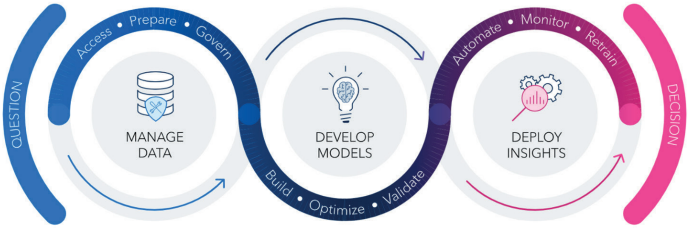

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Antonie Berkel
Account Executive Healthcare

SAS Nederland

Nienke van Zoggel
Business Consultant Healthcare

PW Consulting

Lopend onderzoek in de regio Amsterdam

Openingssessie 09.15 - 10.00 Concertzaal

Voorzitters:

Matthijs Nijenhuis

Philip d'Ailly

1. A.M. Eskes - Family participation in surgical care
2. A.H.M. Mennen - The PELVIC Study
3. D.J. van de Berg - The Fluopatch Study
4. L. Rijken - The VASCUL-AID Project

1

Auteurs	A.M. Eskes
Abstract title	**Family participation in surgical care**
Background	Increasing demand for healthcare has exacerbated the pressures hospitals around the world experience for beds, resulting in patients going home quicker and sicker. The transition from hospital to home can be challenging for both surgical patients and their families, especially when patients require additional support to manage their recovery. Traditionally, community nursing services have provided professional care to support patient recovery after hospital discharge, but it can be questioned if this is sustainable given the existing health service pressures, such as nurses leaving the profession, on the healthcare system. It is a real concern that future health systems will be unable to provide post-hospital surgical care in the way we and patients' families expect. Families, who can be relatives or close friends with whom patients have significant relationships, may be required to provide care in this new world. To proactively address this, a shift in how we approach (post)-hospital care is needed. A way to do that is for example by implementing a family involvement program. Families were involved and trained in a range of activities including fundamental care, such as mobilization, breathing exercises and active orientation in time, place and person. In a recent study investigating this program in a sample of 302 patients, we found a 17% reduction in the need for professional care at discharge when a family caregiver was involved. More importantly, patients reported a higher satisfaction when family members were part of the care process and no clinical relevant increase in caregiver burden was found. Besides these clinical challenges, another challenge is to retain nurses for clinical care. Therefore, more and more hospitals implement clinical academic nurse positions for nurses with a university degree. This is important for the retention of talented nurses with academic skills and knowledge in clinical practice.

2

Auteurs	A.H.M. Mennen, M. Lommerse, R. Hemke, H.C. Willems, K.J. Ponsen, M. Maas, F.W. Bloemers, D. van Embden; PELVIC study group
Abstract title	**Impact of regional implementation of a clinical pathway for elderly patients with pelvic fragility fractures (PELVIC) after low energy trauma; a multicentre, stepped-wedge, randomized controlled trial**
Introduction	Patients with pelvic fragility fractures suffer from high morbidity and mortality rates. Despite the high incidence of these injuries, there is currently no regional or nationwide treatment protocol which results in a wide variety of clinical practice. New insights in treatment strategies, such as early diagnosis and minimal invasive operative treatment of these fragile patient population, has led to the development of several clinical pathways in recent literature. The aim of this study is to implement an evidence and experience-based treatment clinical pathway to improve the outcomes in this fragile patient population that currently has multifactorial risks for poor outcome
Methods and analysis	This study will be a regional stepped-wedge cluster RCT which aims for implementation of a clinical pathway in nine trauma centres in the Netherlands. All elderly patients (≥ 50 years old) who suffered a pelvic fragility fracture after low energetic trauma (LET) and are presented to one of the participating hospitals are eligible for inclusion. The pathway aims to optimise the diagnostic process, guides the decision making process for further treatment (e.g. operative or conservative), structures the follow-up, and provides guidelines on post-operative care, pain management, a physiotherapy protocol, and osteoporosis work-up.
Outcome measurements	The primary outcome is mobility, measured by the Parker Mobility Score (PMS). Secondary outcomes are mobility measured by the Elderly Mobility Scale (EMS), functional performance, quality of life, return to home rate, level of pain, type and dosage of analgesic medications, number of falls after treatment, number of (fracture related) complications, 1-year and 2-year mortality. Every 6 weeks a cluster will switch from current practice to the clinical pathway. The aim is a total of 393 inclusions, which provides a 80% statistical power for an improvement in mobility of 10%, measured by the Parker mobility score (PMS).

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Auteurs	D.J. van de Berg
Title	**Fluorescence Imaging for the Perfusion of the Parathyroid Glands of Children (FLUOPATCH)**
Background	Postoperative hypocalcemia, a severe complication of pediatric thyroid surgery, occurs in 20-67% of the children and leads to a lifelong reduced quality of life and increased morbidity rates. In adults, quantified ICG-fluorescence angiography of the parathyroid glands has shown to reduce postoperative hypocalcemia. However, in children no studies have yet been conducted. The aim of this study is to develop a standardized imaging workflow model for quantified ICG-angiography of the parathyroid glands in children.
Methods	Study design: A prospective, observational, multicenter, feasibility study. Population: Patients (<18 years of age) undergoing total thyroidectomy for any indication. Duration and participating centers: Participant enrollment will occur over a twelve month period in Amsterdam UMC, UMC Utrecht and UMC Groningen. Intervention: Patients will always receive standard care. For the purpose of this study, the camera set-up (i.e. camera distance to the operating field) and ICG-protocol (i.e. dose, injection speed) will be standardized among the participating centers in order to generate an homogeneous data set for quantification of the fluorescence signal intensity. Primary objective: Primary goal of this study is to create a standardized and user-independent workflow model of quantified ICG-angiography of the parathyroid glands in children. This workflow model can be the first step in reducing the rate of postoperative hypocalcemia in children.

4

Auteurs	L. Rijken, K.K. Yeung, M.P. Schijven
Abstract titel	**Developing Trustworthy Artificial Intelligence (AI)-driven Tools to Predict Abdominal Aortic Aneurysm Progression and the Risk of Adverse Cardiovascular Events: the VASCULAID-RETRO Study**
Background	To date, it is unknown which patients with an abdominal aortic aneurysm (AAA) will suffer cardiovascular events or in which patients the AAA will progress. The VASCULAID-RETRO study aims to develop artificial intelligence (AI) algorithms able to evaluate the extent of AAA disease progression and risk of cardiovascular events.
Methods	The VASCULAID-RETRO study aims to leverage retrospectively collected data of at least 5000 AAA patients from multiple European clinical centers for the development of AI-algorithms. Initially, a robust data infrastructure network will be established to gather standardized data from all six participating clinical centers. After collection of imaging, -omics data, and (reported) clinical patient data, AI-tools will be developed using this data. Automatic anatomical segmentation on images and image analysis on US, CTA and MRI will be performed. Moreover, prediction algorithms for each data type (imaging, -omics, and clinical data) will be created separately. These prediction algorithms will be merged using fusion AI models to build a comprehensive prediction algorithm based on multi-source data to generate overall risk scores or probabilities for AAA progression and the risk of cardiovascular events.
Results	Ethical approval for retrospective patient data collection have been secured by all clinical partners. Currently, the data infrastructure for the collection of the retrospective data is being developed. Patient data from electronic patient files will be collected in Castor EDC and imaging will be stored on an XNAT server.
Conclusion	FUTURE PERSPECTIVE: The VASCULAID-RETRO AAA study is part of the VASCULAID project, an European Horizon-funded research project. Similar AI algorithms will be developed for patients with peripheral arterial disease (PAD) of the lower limbs. Following the VASCULAID-RETRO studies for AAA and PAD patients, prospective studies will be performed in which more data will be collected and the developed AI-algorithms will be validated for identifying AAA and PAD patients at high risk of disease progression and cardiovascular events.

Sessie 1a: Viatris: Pantastische Pancreas-Perikelen 11.00 - 12.00, Concertzaal

Voorzitters:

Koert Kuhlmann

Tara Mackay

1. J.R. Puik - Predictive value of miR-379 for response to first-line chemotherapy in advanced pancreatic cancer
2. A.M.L.H. Emmen - Implementation and outcome of minimally invasive pancreatoduodenectomy in Europe: A critical appraisal of the first 3 years of the E-MIPS registry
3. C.A. Leseman - Nationwide outcomes per type of pancreatectomy for intraductal papillary mucinous neoplasm: 'heads or tails' or should guidelines take type of resection required into account?
4. N. De Graaf - First experience of robotic versus open pancreatoduodenectomy: a nationwide propensity-score matched analysis
5. M. Zwart - Video analysis of gastro-jejunostomy to predict delayed gastric emptying after robotic pancreatoduodenectomy
6. C.L. Bruna - Histopathological appraisal of splenic hilum lymphadenectomy during distal pancreatectomy for pancreatic cancer: predefined subanalysis of the DIPLOMA trial

1

Auteurs	J. R. Puik, L. N.C. Boyd, M. Ali, T. Y.S. Le Large, L L. Meijer, H. W.M. van Laarhoven, E. Giovannetti, G. Kazemier
Abstract titel	**Predictive value of miR-379 for response to first-line chemotherapy in advanced pancreatic cancer**
Background	Firstl line systemic treatment of patients with advanced pancreatic ductal adenocarcinoma (PDAC) consists of combined chemotherapeutic regimens of FOLFIRINOX or gemcitabine with nab-paclitaxel. Drug resistance, however, hampers the success and benefit that patients can experience from these chemotherapeutic strategies. Predictive biomarkers are necessary to guide individualized clinical decision-making. This study assesses the value of miRNAs to predict response to FOLFIRINOX vs gemcitabine-nab-paclitaxel in advanced PDAC.
Methods	Next-generation sequencing was used for biomarker discovery in 24 pre-treatment serum samples from metastatic PDAC patients treated with FOLFIRINOX or gemcitabine-nab-paclitaxel. The top 4 candidate biomarkers (miR-127, miR-155, miR-200, and miR-379) were validated by PCR in a separate cohort of 37 patients with advanced PDAC. Cox regression models and ridge regression models were used to assess the association between miRs and the therapy effect of FOLFIRINOX vs gemcitabine-nabÂ¬-paclitaxel in terms of overall survival.
Results	In the validation cohort, higher miR-379 was strongly predictive of treatment efficacy (interaction test, P=0.0004), and remained predictive after correction for confounding by age and sex. FOLFIRINOX was significantly better than gemcitabine-nab-paclitaxel in the subset of patients with lower than median miR-379 (hazard ratio, 0.32 [95% confidence interval, 0.08 to 0.98]; P=0.046), while gemcitabine-nab-paclitaxel was superior in the subset of patients with higher than median miR-379 (hazard ratio, 0.28 [0.10 to 0.86]; P=0.027). In contrast, there was no evidence for an association between therapy response and miR-155 or miR-200 levels (interaction test, P=0.36 and P=0.19, respectively), while miR-127 was moderately predictive of treatment effects (interaction test, P=0.036).
Conclusion	Pursuant to further validation in larger observational studies, miR-379 could serve as a predictive biomarker to guide individualized clinical decision-making between FOLFIRINOX and gemcitabine-nab-paclitaxel for patients with advanced PDAC.

2

Auteurs	A.M.L.H. Emmen, N. de Graaf, I.E. Khatkov, O.R. Busch, S. Dokmak, U. Boggi, B. Groot Koerkamp, G. Ferrari, I.Q. Molenaar, O. Saint-Marc, M. Ramera, D.J. Lips, J.S.D. Mieog, M.D.P. Luyer, T. Keck, M. D'Hondt, F.R. Souche, B. Edwin, T. Hackert, M.S.L. Liem, A. Iben-Khayat, H.C. Van Santvoort, M. Mazzola, R.F. De Wilde, E.F. Kauffmann, B. Aussilhou, S. Festen, R. Izrailov, P. Tyutyunnik, M.G. Besselink*, M. Abu Hilal*, for the European Consortium on Minimally Invasive Pancreatic Surgery (E-MIPS)
Abstract titel	**Implementation and outcome of minimally invasive pancreatoduodenectomy in Europe: A critical appraisal of the first 3 years of the E-MIPS registry**
Background	International multicenter audit-based studies focusing on outcomes of minimally invasive pancreatoduodenectomy (MIPD) are lacking. The European registry for Minimally Invasive Pancreatic Surgery (E-MIPS) is an E-AHPBA endorsed registry which aims to monitor and safeguard the introduction of MIPD in Europe.
Methods	A planned analysis of outcomes among consecutive patients after MIPD from 45 centres in 14 European countries in the E-MIPS registry (2019-2021). Main outcomes of interest were major morbidity (Clavien-Dindo grade ≥3) and 30-day/in-hospital mortality.
Results	Overall, 1,336 patients after MIPD were included (835 robot-assisted (R-MIPD) and 501 laparoscopic MIPD (L-MIPD)). Overall, 20 centres performed R-MIPD, 15 centres L-MIPD, and 10 centres both. Between 2019 and 2021, the rate of centres performing L-MIPD decreased from 46.9% to 25%, whereas for R-MIPD this increased from 46.9% to 65.6%. Overall, the rate of major morbidity was 41.2%, 30-day/in-hospital mortality 4.5%, conversion rate 9.7%, postoperative pancreatic fistula grade B/C 22.7%, and post-pancreatectomy haemorrhage grade B/C 10.8%. Median length of hospital stay was 12 days [IQR 8-21]. The number of centres meeting the Miami Guidelines cut-off of ≥20 MIPDs annually increased from 9 (28.1%) in 2019 to 12 (37.5%) in 2021 (P=0.424). Rates of conversion (7.4% vs 14.8% P<0.001) and reoperation (8.9% vs 15.1%) P<0.001) were lower in centres that met the Miami cut-off.
Conclusion	During the first 3 years of the pan-European MIPS registry, morbidity and mortality rates after MIPD were acceptable. A shift is ongoing from L-MIPD to R-MIPD. Variations in outcomes should be further evaluated over a longer time period.

3

Auteurs	C.A. Leseman, T.Y.S.. le Large, L. Brouwer-Hol, M.W.J. Stommel, B.A. Bonsing, C. van Eijck, R.P. Voermans, S. Lekkerkerker, B. Groot Koerkamp, H.C. van Santvoort, O.R. Busch, I.Q. Molenaar, G. Kazemier, M.G. Besselink
Abstract titel	**Nationwide use and outcome of pancreatectomy for IPMN: should guidelines take the type of pancreatic resection required into account**
Background	Current guidelines on intraductal papillary mucinous neoplasm (IPMN) do not take the location of IPMN (e.g. pancreatic head, body, tail) and the associated required pancreatic resection into account when advising pancreatic resection. This could be relevant as outcomes may differ although large multicenter studies on the outcome of pancreatoduodenectomy, left-sided pancreatectomy, and total pancreatectomy for IPMN are lacking. Therefore, this nationwide study aimed to evaluate the outcomes associated with pancreatectomy for IPMN.
Methods	Nationwide, retrospective analysis of all consecutive patients after pancreatectomy for pathology proven IPMN from the mandatory prospective Dutch Pancreatic Cancer Audit (2014-2020). Primary outcomes were in-hospital/30-day mortality and major morbidity (Clavien-Dindo grade 3). Only complications defined as ISGPS grade B/C were included. Trends in use and outcomes per pancreatectomy were evaluated.
Results	Overall, 396 patients underwent pancreatectomy for IPMN, including pancreato-duodenectomy (PD; n = 246, 62%), left-sided pancreatectomy (LP; n = 130, 33%), and total pancreatectomy (TP; n = 20, 5%). The rate of in-hospital/30-day mortality was 2.0% and did not differ significantly between groups (2.8%, 0%, 5.0%, p = 0.257). The rate of major morbidity was 32% and did not differ significantly (36%, 25%, 25% p = 0.545). The rates of postoperative pancreatic fistula (POPF; 17%, 15%, NR, p = 0.140) and bile leak (12%, NR, 5%, p = 0.694) did not differ significantly between groups, whereas delayed gastric emptying was reported more often after PD (DGE; 23%, 2%, 20%, p = 0.0001). Mean length of hospital stay was 14.7 days (SD 14.6) and shortest after LP (17.8, 8.8, 15.1 days, p<0.001). The 30-day readmission rate was the highest after PD (27%, 18%, 0%, p = 0.003). Final pathology showed high grade dysplasia (HGD) in 69 patients (17%), mostly after TP (20%, 10%, 40%, p <0.001). The use of pancreatectomy for IPMN remained stable, whereas the use of TP decreased (Pearson r 0.281; -0.579, respectively).

Conclusion	This study found no significant differences in terms of mortality and major morbidity among three types of pancreatectomy for IPMN. These findings do not justify an altered threshold for surgical resection based the type of pancreatic resection required for IPMN. Notably, long-term outcomes associated with different types of pancreatectomy were not taken into account in the present study.

4

Auteurs	N. de Graaf, M. J.W. Zwart, J. van Hilst, O. R. Busch, F. Daams, S. van Dieren, S. Festen, D. J. Lips, M. D.P. Luyer, J.S.D. Mieog, I. Quintus Molenaar*, B. Groot Koerkamp*, M. G. Besselink* for the Dutch Pancreatic Cancer Group
Abstract titel	**First experience of robotic versus open pancreatoduodenectomy: a nationwide propensity-score matched analysis**
Background	While robotic pancreatoduodenectomy (RPD) has shown promising outcomes in experienced high-volume centers, it is unclear whether implementation on a nationwide scale is safe and beneficial. This study compared the outcomes of early experience with RPD versus conventional open pancreatoduodenectomy (OPD) in the Netherlands, focusing on patient safety.
Methods	A nationwide retrospective cohort study of all consecutive patients undergoing RPD and OPD registered in the mandatory Dutch Pancreatic Cancer Audit (18 centers, 2014-2021), starting from the first RPD procedures per center. Main endpoints were major complications (Clavien-Dindo ≥3) and in-hospital/30-day mortality. Propensity-score matching (1:1) was used to minimize selection bias. Sensitivity analyses on learning curve, volume, and indications were performed.
Results	Overall, 701 patients after RPD and 4447 after OPD were included. Among the eight centers that started RPD during the inclusion period, the median RPD experience was 86 (range 48-149), with a 7.3% conversion rate. After matching (698 RPD vs. 698 OPD controls), no significant differences were found in major complications (40.3% vs. 36.2%, P=0.186), in-hospital/30-day mortality (4.0% vs. 3.1%, P=0.326), postoperative pancreatic fistula grade B/C (24.9% vs. 23.5%, P=0.578) and post-pancreatectomy hemorrhage grade B/C (12.5% vs 9.6%, P=0.111). RPD was associated with longer operative time (359 vs. 301 min, P<0.001), less intraoperative blood loss (200 vs. 500 mL, P<0.001), fewer wound infections (7.4% vs. 12.2%, P=0.008), and shorter hospital stay (11 vs. 12 days, P<0.001) than OPD. In patients with pancreatic cancer (N=453), no difference was found in R0-resection rate (60.1% vs. 54.6%, P=0.106). Centers performing ≥20 RPDs annually had lower mortality (2.9% vs. 7.3%, P=0.009) and conversion rates (6.3% vs. 11.2%, P=0.032).

Conclusion	This study demonstrates that RPD was safely implemented nationwide, without significant differences in major morbidity and mortality compared with matched OPD patients. Randomized trials should verify these findings and confirm the observed benefits of RPD versus OPD.

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Auteurs	M. Zwart, B. den Broek, D. Paijens, T. Geraedts, R. Schipper, S. Zwetsloot, A. Comandatore, O. Busch, K. Tran, M. Luyer, J. Schreinemakers, J. Wijsman, G. van der Schelling, I. de Hingh, S. Mieog, B. Bonsing, K. Takagi, R. de Wilde, L. Morelli, H. Zeh, A. Zureikat, M. Hogg, B. Groot Koerkamp, M. Besselink, for the Dutch Pancreatic Cancer Group
Abstract titel	**Video analysis of gastro-jejunostomy to predict delayed gastric emptying after robotic pancreatoduodenectomy**
Background	Robotic pancreatoduodenectomy (RPD) has proven to be as safe as open pancreatoduodenectomy (OPD), sometimes even more favorable in terms of overall length of hospital stay and complication rates. However, postoperative incidence of morbidity is still substantial, such as delayed gastric emptying. To this day, improved surgical performance has not yet been linked to a decrease in delayed gastric emptying in RPD. The aim of this study is to identify learning curves for robotic gastric anastomosis during RPD and the predictive value of the objective structured assessment of technical skills (OSATS) score for delayed gastric emptying according to the Birkmeyer and UPMC method.
Methods	Videos of gastric anastomosis during RPD were analyzed in a retrospective multicenter (LAELAPS 3) cohort by two blinded graders. Surgical performance was scored with OSATS. The main outcome measures are the combined OSATS scores of two blinded graders over time (learning curve). Secondary outcome is the correlation between OSATS scores and delayed gastric emptying (DGE, grade B/C).
Results	Videos from 192 gastric anastomosis were included. DGE occurred in 42/192 (21.9%) of patients. Mean OSATS score was 22.5 (SD±5.0) and was significantly predictive for DGE (AUC 0.668, P<0.001). The significant predictive OSATS elements were: Gentleness (AUC 0.719, P<0.001), instrument handling (AUC 0.595 P=0.043), tissue exposure (AUC 0.625, P=0.009), summary score (AUC 0.665, P25 points remained a consistent predictor (OR 0.344, P=0.028).

Conclusion	Using OSATS to score the gastric anastomosis in RPD is a useful for identifying learning curves. Higher OSATS scores decreased the risk of DGE, making OSATS a predictor for post-operative delayed gastric emptying. OSATS could serve as a tool for assessment of robotic gastric anastomoses, e.g., in training programs and implementation.

6

Auteurs	C. L Bruna, J. van Hilst, A. Esposito, D. Kleive, M. Falconi, J.N. Primrose, M. Korrel, A. Zerbi, A. Kokkola, G. Butturini, B. Björnsson, R. Casadei, R. Marudanayagam, M.G. Besselink, M. Abu Hilal*
Abstract titel	**Histopathological appraisal of splenic hilum lymphadenectomy during distal pancreatectomy for pancreatic cancer: predefined subanalysis of the DIPLOMA trial**
Background	Splenectomy during distal pancreatectomy is considered to be standard in the surgical management of resectable left-sided pancreatic ductal adenocarcinoma (PDAC). This is justified by the need to obtain a complete lymphadenectomy. However, scientific evidence supporting this approach is still lacking. We aim to perform the appraisal of splenic hilum lymph node involvement in distal pancreatectomy specimens examined in the DIPLOMA trial using standardized pathology procedures.
Methods	The international randomized patient- and pathologist-blinded DIPLOMA-trial enrolled 258 patients with resectable pancreatic body and tail cancer between minimally invasive and open distal pancreatectomy (May 8, 2018 - May 7, 2021), of which patients with PDAC were included in the present predefined subanalysis. The primary outcome was the number of identified and positive lymph nodes (LNs) in the splenic hilum. The secondary outcome was survival in patients with and without splenic hilum LN metastasis. Cox regression analyses were performed to determine whether splenic LN metastasis predict survival.
Results	In total, 185 patients were included in the present analysis. Medium number of identified LNs was 23.0 (IQR 15.0–32.0) , and median number of identified LNs in the splenic hilum was 3.0 (IQR 1.0-6.0). Notably, only four patients (4/185; 2.2%) had splenic hilum LN metastasis, of whom three patients had pancreatic tail cancer and one patient had pancreatic body cancer. Of these, three patients also had LN metastases superior and inferior of the pancreas. Median survival of four patients with splenic hilum LN metastasis was 17 months [range 13-36]. Median survival in patients without splenic hilum LN metastasis was not reached (30-months survival rate 60%) (p = 0.714). Upon Cox regression analysis, the small number of patients with splenic hilum LN metastasis prevents a firm conclusion on its role as an independent predictor of survival.

Conclusion	In the present study, the rate of splenic hilum LN metastasis was < 5% and its predictiveness on survival in patients undergoing distal pancreatectomy for left-sided pancreatic cancer is not well known. The need for standard splenectomy in distal pancreatectomy for PDAC may need to be reevaluated.

Sessie 1b: Ticks, Checks and Balances
11.00 - 12.00, Teekenzaal

Voorzitters:

Freek Daams

Max Knaapen

1. W.Y. van der Plas - Diagnostic accuracy of imaging for intraoperative localization of parathyroid adenoma in patients with primary hyperparathyroidism
2. A. de Wit - Comparison of compliance to an enhanced study protocol to prevent from colorectal anastomotic leakage between the DoubleCheck and SmartCheck study
3. E.E. van der Meulen - Impact of anastomotic bowel leakage on oncological outcomes and stoma presence
4. E.G.M. van Geffen - Evaluation of clinical nature, treatment and oncological outcomes of locally recurrent rectal cancer over time: results from two national cross-sectional cohort studies
5. L.S. Blaas - Hemiarthroplasty versus ORIF for complex, severely displaced proximal humerus fractures in middle-aged patients

1

Auteurs	W.Y. van der Plas, M. Tulu, E.J.M. Nieveen van Dijkum, K. in ´t Hof, A.F. Engelsman
Abstract titel	**Diagnostic accuracy of imaging for intraoperative localization of parathyroid adenoma in patients with primary hyperparathyroidism**
Background	Accurate preoperative adenoma localization facilitates minimal invasive parathyroidectomy (MIP) and is crucial for successful treatment of primary hyperparathyroidism (pHPT). However, no consensus has been reached on the type of imaging modality to be used as the gold standard. We aimed to determine and compare the diagnostic accuracy of frequently applied imaging modalities, including ultrasound (US) in combination with Technetium-99m (99mT) sestamibi SPECT/CT scan, 4D-CT scan, and PET-CT scan.
Methods	A retrospective analysis was conducted including patients who underwent MIP for pHPT from three hospitals in The Netherlands. The imaging accuracy was assessed by calculating sensitivity and positive predictive value (PVV) for different imaging techniques and used imaging modalities were correlated with patient characteristics.
Results	In total, 189 patient were included for analysis of which 169 patients (89.4%) with a pathologist confirmed parathyroid adenoma (positive pathology result) and in 20 patients (10.6%) preoperative localization did not match with the pathology findings. PET-CT scan had the highest PPV of 96.2%. The PPV of 4D-CT was 75.0%, and US in combination with 99mTc sestamibi SPECT/CT scan had a PPV of 84.0%. The percentage of patients requiring a second modality because of inconclusive results was 27% for 4D-CT, 29% for PET-CT, 46% for US/SPECT respectively (p=0.041). Patients who required secondary imaging were older, (p=0.018), had more frequently a genetic parathyroid disorder (p=0.04) and a lower adenoma weight (p=0.01) compared to those who required only the one imaging modality.
Conclusion	PET-CT scan has a high PPV and required the lowest rate of secondary imaging. and its use in preoperative planning of MIP may be considered more frequently.

2

Auteurs	A. de Wit, B.T. Bootsma, D.E. Huisman, F. Daams
Abstract titel	**Comparison of compliance to an enhanced study protocol to prevent from colorectal anastomotic leakage between the DoubleCheck and SmartCheck study**
Background	Colorectal anastomotic leakage (CAL) remains a severe complication after bowel resection with creation of an anastomosis. Our recent LekCheck study (LC) identified six modifiable CAL risk factors. The DoubleCheck (DC) and SmartCheck (SC) studies were designed to improve the intraoperative condition of patients by implementing an enhanced intervention bundle, and determining its effect on CAL. This observational study aims to examine which introduction style results in better compliance to a new study protocol.
Methods	Both are multi-center open-labelled trials with historical controls, implementing an enhanced care protocol during creation of the anastomosis to minimize exposure to: anemia, hyperglycemia, hypothermia, epidural anesthesia, inotropic drug administration and incorrect antibiotic prophylaxis. Both studies used identical protocols, but they were only obligated in the DC, whereas the SC study consisted of a purely observational checklist. The study endpoint is the intraoperative condition measured as exposure to the risk factors.
Results	1100 patients were included in this study (867 DC; 233 SC). In the previous LC study patients were exposed to a mean of 1.62 (0 – 6) risk factors at the time of the creation of the anastomosis, compared to 1.54 (0 – 4) in the DC and 1.88 (0 – 5) in the SC ($p < 0.001$).
Conclusion	Obligated implementation of a quality improvement protocol proved to have superior compliance over an observational checklist. Additional results are being collected to assess whether different compliance results in different CAL rates.

3

Auteurs	E.W. Ingwersen, D.E. Huisman, E.E. van der Meulen, B.T. Bootsma, G. Kazemier, H.M. Kroon, I. Murshed, T. Sammour, F. Daams
Abstract titel	**Impact of anastomotic bowel leakage on oncological outcomes and stoma presence**
Background	Literature on the long-term effects of anastomotic bowel leakage (ABL) with regards to postoperative oncological outcomes and stoma presence is equivocal. Understanding the association between ABL and long-term outcomes is crucial for patient follow-up, counseling, and tailored treatment decisions. Objective was to investigate the impact of ABL on cancer recurrence and stoma presence in patients undergoing colon and rectal cancer surgery.
Methods	This prospective cohort study was conducted in patients included in the LekCheck study. Follow-up period was 5 years. This multicenter international study conducted in 14 hospitals in three countries including patients undergoing colon cancer surgery and rectal cancer surgery and were analyzed separately. Patients with a primary anastomosis were included. The outcomes assessed were cancer recurrence rate, overall survival, disease-free survival, and stoma presence at five years of follow-up, stratified based on ABL.
Results	A total of 1 042 patients were included. ABL was not significantly associated with cancer recurrence, overall survival, or disease-free survival after colon or rectal cancer surgery. However, for colon cancer surgery, ABL was associated with the presence of a stoma at five years of follow-up (18.8% vs 1.9%, odds ratio 16.96, 95% confidence interval 8.69 – 33.10, P<0.001). Similarly, in rectal cancer surgery, stoma presence at five years was significantly higher in patients after ABL (21.9% vs 1.9%, odds ratio 5.61, 95% confidence interval 1.82 - 17.27, P<0.001).
Conclusion	This study did not demonstrate a negative impact of ABL on oncological outcomes. However, ABL was strongly associated with an increased incidence of stoma presence after five years, significantly affecting the patients' quality of life after colon and rectal cancer surgery.

4

Auteurs	E.G.M. van Geffen, J.A.M. Langhout, S.A. Hazen, T.C. Sluckin, G.L. Beets, R.G.H. Beets-Tan, W.A.A. Borstlap, K. Horsthuis, M.P.W. Intven, C.A.M. Marijnen, P.J. Tanis, M. Kusters, on behalf of the Dutch Snapshot Research Group
Abstract titel	**Evaluation of clinical nature, treatment and oncological outcomes of locally recurrent rectal cancer over time: results from two national cross-sectional cohort studies**
Background	In the Netherlands, there has been a reduction in radiotherapy usage for rectal cancer. While this decrease has not compromised oncological outcomes, neoadjuvant radiotherapy of the primary tumour is thought to affect the treatability of locally recurrent rectal cancer (LRRC). This study aims to evaluation the clinical nature, treatment and oncological outcomes of locally recurrent rectal cancer over time, by studying two national cross-sectional cohort studies.
Methods	All patients who underwent a total mesorectal excision in 2011 (n=2095) and 2016 (n=2855) for their primary tumour were included with a 4-year follow up and were merged from two nationwide cohort studies. Main outcomes included time to LRRC, synchronous metastases at time of LRRC diagnosis, intention of treatment and 2-year overall survival (OS) after LRRC.
Results	Between 2011 and 2016 a decrease in neoadjuvant (chemo) radiotherapy from 89.2% to 60.0% was observed. The 3-year LR rate was 5.5% in 2011 (n=95, median time to LRRC 18 months) compared to 6.8% in 2016 (n=173, p=0.121, median time to LRRC 16 months). No difference between synchronous metastases at time of LRRC diagnoses was found (26.2% in 2011; 32.5% in 2016, p=0.250). The intention of treatment shifted towards more curative treatment in 2016 compared to 2011 (38.0% vs 21.5%, p=0.003). Two-year OS after LRRC diagnoses increased from 30.4% in 2011 to 49.9% in 2016 (p=0.002), and from 47.5% to 78.7% when stratified for curative intent (p=0.006).
Conclusion	There was a significant increase in curative treatment and OS in 2016 compared to 2011. Factors that might contribute to this might be the decrease in neoadjuvant radiotherapy for the primary tumour, centralization of care and more extensive treatment options for LRRC and metastases.

5

Auteurs	L.S. Blaas, R.L.O.M.A. Bent, T.D.W. Alta, A van Noort, R.J. Derksen
Abstract titel	**Hemiarthroplasty versus ORIF for complex, severely displaced proximal humerus fractures in middle-aged patients**
Background	The optimal treatment for complex proximal humerus fractures (PHFs) remains unknown. Conservative treatment is standard for minimally displaced fractures, while reverse shoulder arthroplasty is increasingly popular for complex fractures in elderly. However, for middle-aged patients with highly complex fractures, sound evidence for treatment is missing. Treatment with open reduction and internal fixation (ORIF) can be challenging and literature opts for hemiarthroplasty (HA) as a viable treatment option, nevertheless, HA is becoming less popular. Therefore, we hypothesized that in patients with a complex PHF with an intact rotator cuff, a well-performed fracture HA could be the best available option, as opposed to ORIF.
Methods	In this retrospective, multicenter comparative cohort-study, 30 patients with complex PHFs were included. Ten patients underwent HA and those were matched to 20 with an ORIF. All patients had at least one-year follow-up. Patient-reported outcome measures (PROMs) were assessed: Constant-Murley Score (CMS), Oxford Shoulder Score (OSS), Disabilities of the Arm, Shoulder, and Hand (DASH) score, and the pain was assessed with the Visual Analogue Score (VAS). In addition, the range of motion (ROM) and complications were evaluated.
Results	The mean age for HA and ORIF treated patients was 55.4 vs. 56.3 years. The HA group had a statistically significant higher number of patients with head-split fractures. For PROMs, the following means (CI-95%) for HA versus ORIF were, respectively 26.8 (6.2 – 47.4) vs 28.6 (22.1 – 35.1) for DASH, 37.3 (28.5 – 46.1) vs 37.4 (34.1 – 40.6) for OSS, 25.9 (7.9 – 43.9) vs 21.4 (13.0 – 29.7) for CMS, 64.2 (44.7 – 83.7) vs 71.0 (63.8 – 78.2) for CMS fracture side. No statistically significant differences were found. For ROM, forward flexion 110.5 (80.7 – 140.3) vs 116.2 (98.0 – 134.4), abduction 107.4 (73.9 – 140.9) vs 105.3 (83.0 – 127.6) and external rotation 26.3 (2.4 – 50.2) vs 27.4 (18.7 – 36.1) also showed no statistically significant differences. However, in both groups, high complication and revision rates were found. With more revisions in the HA group (50%) compared to the ORIF group (30%).

Conclusion	For middle-aged patients with complex PHFs, this study concludes that there are no statically significant differences between treatment with a HA or ORIF. Overall the PROMs and ROM show good outcomes. However, both groups experienced high complication and revision rates, with a higher revision rate observed in the HA group. Consequently, HA should only be considered for patients aged between 50-60 years with head-split fractures, fracture dislocation, or severely displaced multipart fractures.

Sessie 1c: We Zullen Doorgaan
11.00 - 12.00, Shaffyzaal

Voorzitters:

Anke Kuijpers

Didi Sloothaak

1. M . Zeeuw - Total tumor volume assessment in patients with colorectal liver metastases: an alternate prognostic biomarker for recurrence
2. B. Ten Haaft - Robotic versus Open Hepatic Arterial Infusion Pump Placement for Unresectable Intrahepatic Cholangiocarcinoma: Results From a Prospective Multicenter Phase II Trial
3. S.I Kreisel - Quality of Life in Patients with A Perineal Hernia
4. C.A.L. Jonker - Complications of Chait Cecostomies for Antegrade Continence Enemas (ACE) in Children with Intractable Constipation and/or fecal incontinence; The Amsterdam Experience.
5. A.H.M. Mennen - The incidence, mortality, and treatment of paediatric pelvic ring fractures in two level 1 trauma centres in the Netherlands
6. M. Hoebink - Clinical outcomes of 5 000 IU heparin versus activated clotting time guided heparinization during non-cardiac arterial procedures: a propensity score matched analysis.

1

Auteurs	M. Zeeuw, A. Bakker, N. J. Wesdorp, M. Ali, K. Voigt, M. Starmans, J. Roor, J.T.M. van Waesberghe, J. van den Bergh, I. Nota, S. Moos, S. van Dieren, J. Stoker, D. Grunhagen, R. Swijnenburg, C.J.A. Punt, J. Huiskens, C. Verhoef, G. Kazemier and the Dutch Colorectal Cancer Group Liver Expert Panel
Abstract titel	**Total tumor volume assessment in patients with colorectal liver metastases: an alternate prognostic biomarker for recurrence**
Background	Colorectal cancer metastasizes to the liver in more than half of the patients, and after local treatment of the liver approximately 80% experiences recurrence of disease. This study aims to assess the prognostic value of total tumor volume (TTV) for recurrence-free survival in patients with colorectal liver metastases (CRLM), treated with induction systemic therapy followed by local treatment.
Methods	Patients with liver-only CRLM from the multicenter randomized clinical trial CAIRO5 (NCT02162563) that received induction systemic therapy followed by local treatment were included. Baseline TTV and change in TTV as response to systemic therapy were calculated using the CT scan before and after systemic treatment. The prognostic value of TTV and other clinical variables were assessed using multivariable Cox regression analyses.
Results	In total, 430 contrast-enhanced abdominal CT-scans with 2400 CRLM in 215 patients were included with a median baseline TTV of 48.5 ml [17.1-178.0] and absolute change in TTV of -21.1 ml [-81.3 to -6.2]. Baseline TTV and absolute change in TTV together had significant additional prognostic value over conventional clinical variables (likelihood ratio test, P = 0.021). Using baseline TTV, absolute delta TTV, CEA, number of metastases, lobar distribution and timing of metastases , two risk groups are created that show a significant difference in 6-month recurrence-free survival probability (high-risk: 44% vs low-risk: 72%; hazard ratio: 2.33 [1.72 to 3.16]; P < 0.0001).
Conclusion	TTV demonstrates independent prognostic value for recurrence-free survival and enhances the predictive accuracy of a Cox regression model that incorporates established prognostic factors. Further validation is warranted, but the incorporation of TTV into established prognostic models for patients with initially non-locally treatable CRLM has the potential to enhance risk stratification and facilitate personalized clinical decision-making.

2

Auteurs	B. ten Haaft, S. Franssen, R.W.J. van Dorst, M. Rousian, G. Pilz da Cunha, R.F. de Wilde, J.I. Erdmann, B. Groot Koerkamp, J. Hagendoorn, R. Swijnenburg
Abstract titel	**Robotic versus Open Hepatic Arterial Infusion Pump Placement for Unresectable Intrahepatic Cholangiocarcinoma: Results From a Prospective Multicenter Phase II Trial**
Background	Hepatic arterial infusion pump (HAIP) chemotherapy is an effective treatment for patients with unresectable intrahepatic cholangiocarcinoma (iCCA). HAIP chemotherapy requires a catheter inserted in the gastroduodenal artery and a subcutaneous pump. The catheter can be placed with an open or robotic approach. This study aims to compare perioperative outcomes of robotic versus open HAIP placement in patients with unresectable iCCA.
Methods	We analyzed patients with unresectable iCCA included in the PUMP-II trial from January 2020 to September 2022 undergoing robotic or open HAIP placement at Amsterdam UMC, Erasmus MC, and UMC Utrecht. The primary outcome was time to functional recovery (TTFR).
Results	In total, 22 robotic and 28 open HAIP placements were performed. The median TTFR was 2 days after robotic versus 5 days after open HAIP placement (P<0.001). One patient (4.5%) in the robotic group underwent a conversion to open because of a large bulky tumor leaning on the hilum immobilizing the liver. Postoperative complications were similar; 36% (8/22) after robotic versus 39% (11/28) after open placement (P=1.000). The median length of hospital stay was shorter in the robotic group; 3 versus 5 days (P<0.001). All 22 robotic patients initiated HAIP chemotherapy post-surgery, this was 93% (26/28) in the open group (P=0.497). The median time to start HAIP chemotherapy was 14 versus 18 days (P=0.153), respectively.
Conclusion	Robotic HAIP placement in patients with unresectable iCCA is a safe and effective procedure and is associated with a significantly shorter TTFR and hospital stay than open HAIP placement.

3

Auteurs	S.I. Kreisel, S. Sharabiany, J. Rothbarth, R. Hompes, G.D. Musters, P.J. Tanis
Abstract titel	**Quality of Life in Patients with A Perineal Hernia**
Background	Patients who develop a perineal hernia after abdominoperineal resection may experience discomfort during daily activities and urogenital dysfunction, but the impact on quality of life has never been formally assessed.
Methods	Patients who underwent abdominoperineal resection for rectal cancer between 2014-2022 in two prospective multicenter trials were included. Primary outcome was defined as median overall scores or scores on functional and symptom scales of the following quality of life questionnaires: 5-level version of the 5-dimensional EuroQol, Short Form-36, and European Organization for Research and Treatment of Cancer QoL Questionnaire Colorectal cancer 29 and 30, Urogenital Distress Inventory-6, Incontinence Impact Questionnaire-7.
Results	Questionnaires were available in 27 patients with a perineal hernia and 62 patients without a perineal hernia. The 5-dimensional EuroQol score was significantly lower in patients with a perineal hernia (83 vs 87, p=0.048), which implies a reduced level of functioning. The median scores of pain-specific domains were significantly worse in patients with a perineal hernia as measured by the SF-36 (78 vs. 90, p=0.006), the EORTC-CR29 (17 vs. 11, p=<0.001) and EORTC-C30 (17 vs. 0, p=0.019). Also, significantly worse physical (73 vs. 100, p= 0.049) and emotional (83 vs. 100, p=0.048) functioning based on EORTC-C30 was observed among those patients. Minimally important differences were found for role, physical and social functioning of the SF-36 and EORTC-C30. The urological function did not differ between the groups.
Conclusion	A symptomatic perineal hernia can significantly worsen quality of life on several domains, indicating the severity of this complication.

4

Auteurs	C.A.L. Jonker, M.A. Benninga, I.J.N. Koppen, R.R. Gorter, J.R. de Jong
Abstract titel	**Complications of Chait Cecostomies for Antegrade Continence Enemas (ACE) in Children with Intractable Constipation and/or fecal incontinence; The Amsterdam Experience.**
Background	In pediatric patients with intractable constipation and/or fecal incontinence, antegrade continence enemas (ACE) are considered if conventional management has failed. To enable ACE, several procedures have been described, such as the Malone appendicostomy and the Chait trapdoor cecostomy (CTC). Still, limited data are available regarding the outcomes of CTC, especially complications. We aim to evaluate CTC related complications in children with intractable constipation and/or fecal incontinence.
Methods	We performed a single-center retrospective study including all children (< 18 years) with intractable constipation and/or fecal incontinence who underwent a CTC procedure between 2009 and 2023 in our tertiary referral center. Medical records were evaluated for postoperative complications. The primary outcome was defined as CTC related complications classified according to the Clavien Dindo classification.
Results	Sixty-nine patients were included. The median age at surgery was 12.0 years (IQR 8.0, 15.0; range 1-18 years) and 31 patients (44.9%) were male. Most common underlying diagnoses were: chronic functional constipation (65.2%), spina bifida (17.3%) and anorectal malformation (7.2%). In total, 56 patients (81.2%) experienced 98 CTC related complications. Most commonly reported complications were granulation tissue (n=32, 57.1%), pain at the tube site (n=13, 23.2%) and wound infection at the tube site (n= 13, 23.2%). These were all minor complications (Clavien Dindo I-II). Twenty-nine (29.6%) major complications (Clavien Dindo III-IV) were reported by 25 (36.2%) patients, requiring reoperation for surgical repair of the CTC. These most commonly included tube dislodgement (n=10, 17.9%) and a mechanical failure of the CTC (n=4, 7.1%).
Conclusion	More than 80% of patients who underwent CTC experienced a CTC related complication. The majority were minor complications, although 30% of the reported complications were a major complication, requiring re-operation. This information can be used to adequately inform patients eligible for CTC. Furthermore, this information can be integrated in the ongoing debate regarding the optimal surgical procedure for ACE.

5

Auteurs	A.H.M. Mennen, A.E Geerlings, M. van Haeringen, J. de Jong, E.M.M. van Lieshout, M.H.J. Verhofstad, M. van Vledder, F.W. Bloemers, D. van Embden
Abstract titel	**The incidence, mortality, and treatment of paediatric pelvic ring fractures in two level 1 trauma centres in the Netherlands**
Background	Paediatric pelvic ring fractures are severe but rare injuries, which makes them challenging to treat. To gain insight into this injury, this study aims to analyse patient characteristics and treatment modalities, and discusses trends in incidence, mortality, and treatment modalities
Methods	This retrospective cohort study analyses paediatric patients (“18 years) with pelvic ring fractures who were presented between 2001 to 2021 in two major Dutch trauma centres. Data on patient demographics, injury characteristics, treatment, and outcomes were collected and visual trend analysis was performed.
Results	Overall 157 patients with pelvic ring fractures were included. Visual trend analysis shows a positive trend in the absolute number of patients. The 1-year mortality rate is 11.5%, mostly occurring in the first 48 hours of admission (76%). The mechanism of injury was a traffic accident in 66% of the patients, and the majority had concomitant fractures and injuries (70% and 71% respectively). The majority of the patients was treated non-operatively (60%), and of the surgically treated patients 48% underwent internal fixation without prior external fixation. Although there were no major differences regarding the patient population, there was a disparity in surgical fixation rate between the two hospitals.
Conclusion	The incidence of pelvic ring fractures in children has increased in absolute numbers over time. The mortality rate is high and mostly caused by severe neurotrauma. Surgical treatment fixation without prior external fixation has become more frequent in recent years. Variation in the treatment between hospitals and different age groups demonstrates a lack of consensus regarding the optimal treatment strategy.

6

Auteurs	M. Hoebink, L.C. Roosendaal, M.J. Beverloo, A.M. Wiersema, T. van der Ploeg, T.A.H. Steunenberg, K.K. Yeung & V. Jongkind
Abstract titel	**Clinical outcomes of 5 000 IU heparin versus activated clotting time guided heparinization during non-cardiac arterial procedures: a propensity score matched analysis.**
Background	This study investigated clinical outcomes of 100 IU/kg heparin followed by Activated Clotting Time (ACT) guided heparinization in comparison to a standardized bolus of 5 000 IU heparin during non-cardiac arterial procedures (NCAP).
Methods	A retrospective cohort analysis from a prospectively collected database of patients undergoing NCAP in two vascular centers was performed. Patients receiving ACT guided heparinization were matched 1 : 1 with patients receiving 5 000 IU heparin, using propensity score matching (PSM). Primary outcomes were thrombo-embolic complications (TEC), mortality and bleeding complications within 30 days of procedure or during the same admission.
Results	759 patients (5 000 IU heparin: 213 patients, ACT guided heparinization: 546 patients) were included. PSM resulted in 209 patients included per treatment group. After PSM groups were comparable, with the exception of a higher prevalence of peripheral arterial disease in the ACT guided heparinization group (p = .039). There was no significant difference between patients receiving ACT guided heparinization and standard 5 000 IU heparin for TEC (6.2% vs. 4.8%, p = .52), mortality (1.4% vs. 0%) or bleeding complications (15% vs. 12%, p = .25). Multivariate logistic regression identified female sex, preoperative anaemia (men: < 8.1 mmol/L, women: < 7.5 mmol/L), chronic kidney disease (eGFR < 60 ml/min) and open abdominal aortic aneurysm surgery as predictors for bleeding complications. Patients undergoing carotid surgery or EVAR had a lower probability of bleeding complications.
Conclusion	No difference in TEC, bleeding complications and mortality between ACT guided heparinization and a single bolus of 5 000 IU heparin was found during NCAP.

Sessie 1d: Een Goede Fundering Voor de Chirurgische Lering 11.00 - 12.00, Huslyzaal

Voorzitters:

Wytze Lameris

Pepijn Weeder

1. H. Jalalzadeh - Systematic review and meta-analysis of hemodynamic management strategies during surgery for the prevention of surgical-site infection and other postoperative outcomes
2. D.Y. Gout - Fusion of TNF-α to TrisomAb potentiates neutrophil-mediated anti-tumor effects
3. G. Pilz da Cuhna - Robotic versus laparoscopic liver resection: An economic evaluation from a high-volume expert centre
4. B.M. Geubels - Outcomes of Watch-and-Wait after short-course radiotherapy in an international multicentre Watch-and-Wait registry
5. D. Penning - Plasma and tissue concentrations after admission of 2g prophylactic cefazolin prior to lower extremity surgery – a sub-study of the WIFI-2 randomized controlled trial
6. E. Aalbregt - Quantitative Magnetic Resonance Imaging to Assess Progression and Rupture Risk of Aortic Aneurysms: a Scoping Review

1

Auteurs	H. Jalalzadeh, R.H. Hulskesc, R. P Weenink, D. Veelo, N. Wolfhagen, M.W. Hollmann, M.A. Boermeester, S.W. de Jonge
Abstract titel	**Systematic review and meta-analysis of hemodynamic management strategies during surgery for the prevention of surgical-site infection and other postoperative outcomes**
Background	Surgical site infection (SSI) is the most common postoperative complication. A recent meta-analysis evaluating perioperative goal-directed fluid therapy (GDFT) suggests low certainty of evidence for its beneficial impact on SSI. However, this was a secondary endpoint in a systematic review on mortality and important data on SSI were not included. We assessed the influence of GDFT on SSI and other postoperative outcomes.
Methods	We searched MEDLINE and Embase for randomised controlled trials comparing the effect of any GDFT algorithm to conventional fluid therapy on SSI incidence in adult patients undergoing surgery, published up to August 3, 2023. We conducted sensitivity analyses based on risk of bias and subgroup analyses based on high-risk target populations, early timing of GDFT, GDFT algorithms using a combination of fluids, vasopressors and inotropes, presence of a target variable and personalised target variables. Trial sequential analysis (TSA) was performed to assess the risk of random error and the potential need for additional data. We evaluated the certainty of evidence using GRADE.
Results	The search resulted in 1451 articles, whereof 68 studies were included. The incidence of SSI was 11.6% (1,300 of 11,255 patients). The pooled relative risk of SSI was 0.68 (95% CI 0.60 - 0.79) after GDFT. Sensitivity analyses of studies with a low risk of bias did not change the overall effect. Meta-regression indicated no individual subgroup was associated with the outcome. In the TSA, the cumulative z-line crossed the boundary for effect, indicating that new RCTs are unlikely to modify the effect estimate.
Conclusion	Moderate certainty evidence indicates that GDFT helps prevent SSI when compared to conventional fluid therapy in adults undergoing surgery and new RCTs are unlikely to change this outcome. Guidelines should be updated to reflect this.

2

Auteurs	D.Y. Gout, C.A.N. Sewnath, C.W. Tuk, A.E.H. Bentlage, N. Heemskerk, G. Vidarsson, M. van Egmond
Abstract title	**Fusion of TNF-α to TrisomAb potentiates neutrophil-mediated anti-tumor effects**
Background	Neutrophils are an underestimated leukocyte subset in cancer immunotherapy. It is the most abundant leukocyte in circulation and possesses strong tumor-killing capabilities when stimulated with antibodies of the IgA isotype. Stimulation of IgA receptor FcαRI using a bi-specific antibody induces strong neutrophil recruitment to the edge of the tumor, but tumor-infiltration by recruited neutrophils is negligible. This strongly suggests an innate immune excluded tumor phenotype, comparable to the more well-known T-cell excluded phenotype; 'cold' tumors.
Methods	In order to break this innate immune exclusion, we have developed an antibody-cytokine fusion molecule consisting of the bi-specific FcαRI stimulator mentioned earlier and a TNF-α trimer. TNF-α has been shown to be able to affect the tumor microenvironment in various ways and is able to affect most (immune) cells. We expect the pleiotropic effects of TNF-α to synergize with the effects of the bi-specific antibody to increase the total efficacy.
Results	After successful production of the molecule was confirmed, binding assays showed that fusion of a cytokine did not impair binding affinities of the original antibody. Additionally, in vitro tumor killing using macrophages was shown to be unimpeded in ADCP assays, while tumor killing by neutrophils was increased. Using intravital imaging, we showed that treatment with the fusion molecule increases tumor infiltration and the occurrence of swarming behavior of neutrophils. Following these promising results, we are now investigating the in vitro effects of TrisomAb-TNF on the adaptive immune system as well as its effect on tumor growth and survival in vivo.

Conclusion	Concluding, fusion between the bi-specific FcαRI stimulator and a TNF-α trimer shows the potential to surpass the original antibody in its neutrophil-mediated anti-tumor effects.

3

Auteurs	G. Pilz da Cunha, V.M.H. Coupé, B.M. Zonderhuis, M.G.H. Besselink, R.J. Swijnenburg
Abstract titel	**Robotic versus laparoscopic liver resection: An economic evaluation from a high-volume expert centre**
Background	Minimally invasive liver surgery (MILS) can be performed using a laparoscopic or robot-assisted approach. Surgeons perceive the robotic approach as favourable in terms of instrument handling and ergonomics. However, there is limited evidence supporting that this translates to improved perioperative patient outcomes. Additionally, the implementation of the robotic platform has faced scrutiny because of its high costs. The aim of this study is to assess and compare the healthcare cost expenditure for laparoscopic (LLR) and robotic liver resections (RLR).
Methods	This study a post-hoc economic evaluation of prospectively collected data of MILS procedures performed between 2015 and 2022 at the Amsterdam UMC. Healthcare costs per patient were calculated until 30-days postoperative and compared between the LLR (n=156) and RLR groups (n=143). Indirect costs of the robotic platform and laparoscopy tower were not considered. Costs were stratified according to resection technical complexity (minor, technically major and anatomically major) in a subgroup analysis.
Results	Total per-procedure costs were € 10,302 for RLR and € 10,581 for LLR, not differing significantly. Operative costs were significantly lower for RLR (Mean difference: € -395 [95I € -726 – -56]) which could be attributed to shorter surgical and anesthesia time and lower sterilization costs. When stratified for technical complexity, intraoperative costs were only lower for RLR for technically major resections (Mean difference: € -982 [95I € -1564 – € -420]). Postoperative costs were similar for LLR (€ 4,586 [95I € 3,901 - € 5,356]) and RLR (€ 4,701 [95I € 3,531 - € 6,242]) (Mean difference: € 115 [95I € -1343 - € 1,836]).
Conclusion	When performed in a high-volume expert center, RLR has similar total cost expenditure as LLR. Utilization of the robotic platform for technically major resections may potentially lead to cost-savings. Future research should focus on identifying indications in hepatic surgery where the value of the robot lies.

4

Auteurs	B. M. Geubels, A. van den Esschert, S.J.D. Temmink, P.J. Nilsson, K.C.M.J. Peeters, G.L. Beets, B.A. Grotenhuis (on behalf of the Dutch and International Watch-and-Wait consortium)
Abstract titel	**Outcomes of Watch-and-Wait after short-course radiotherapy in an international multicentre Watch-and-Wait registry**
Background	Watch-and-Wait (W&W) is an organ preservation treatment for rectal cancer patients with a clinical complete response (cCR) after chemoradiation (CRT). However, since most W&W evidence is based on CRT, standard practice following short-course radiotherapy (SCRT) involves (delayed) TME-surgery, particularly without response evaluation. This study aims to evaluate whether cCR following SCRT yields comparable outcomes to CRT in a large international W&W cohort.
Methods	Patients following W&W after SCRT between 2009 and 2022 were included from the International W&W registry. Response evaluation, oncological outcome, and organ preservation were assessed.
Results	161 rectal cancer patients following W&W after SCRT were included: 40% were cT1-2 and 60% were cT3-4 at baseline, and 59% had cN+ disease. Median follow-up was 28 months. First response assessment took place at median 10 weeks after end of radiotherapy. At first response assessment, 61% of the patients had cCR and 39% near-complete response (nCR). Of the patients with nCR, 60% achieved cCR at reassessment (median 22 weeks after end of radiotherapy) and 5% underwent TME-surgery for persistent nCR. Of the remaining nCR-patients, 32% underwent local excision and 2% contact x-ray brachytherapie in order to achieve cCR. Overall, local regrowth occurred in 22/162 cases (14%), all located in the bowel wall and all diagnosed within the first two years of W&W follow-up. There were no significant differences between patients with initial cCR or nCR. Distant metastases occurred in 3% of cases. The 2- and 5-year TME-free disease-free survival was 81.4% and 71.8%. Finally, 86% of the patients following W&W after SCRT successfully underwent organ preservation.
Conclusion	A clinical (near-)complete response after SCRT yields favorable outcomes in terms of organ preservation and W&W appears to be oncologically safe, with comparable results to CRT. This study emphasizes the importance of response evaluation after SCRT: in case of clinical (near-)complete response, W&W can be considered

5

Auteurs	R. Eelsing*, D. Penning*, M. van der Meer-Vos, C.J. Hodiamont, R.A.A. Mathot, T. Schepers
Abstract titel	**Plasma and tissue concentrations after admission of 2g prophylactic cefazolin prior to lower extremity surgery – a sub-study of the WIFI-2 randomized controlled trial**
Background	To reduce the risk of infection, antibiotic prophylaxis is widely used and therefore part of the protocolled care for surgery using implants. In the Netherlands, the recommended dose of cefazolin is 2 grams for prophylaxis. However, the literature regarding recommendation of dosage is limited. The primary aim of this study is to measure cefazolin concentrations at different locations below the level of the knee in both venous plasma, target-site plasma and target-site tissue.
Methods	Between May 2021 and March 2023 we collected 143 samples of 27 patients during implant removal surgery. The venous plasma samples were collected at the upper extremities by means of a standard blood sample. Target-site plasma samples were collected by collecting blood samples out of the surgical wound with a syringe and target-site tissue was collected by a subcutaneous tissue biopsy of the surgical wound. The primary outcomes were the cefazolin concentrations in venous plasma, target-site plasma and target-site subcutaneous tissue. Secondary outcomes were the influences of several predictor variables on the cefazolin concentration. Cefazolin plasma and tissue concentrations were determined by using LC-MS/MS with electrospray ionization in the positive ionization mode on a Shimadzu LC-30 system coupled to a ABSciex 5500 Qtrap MS.
Results	The mean venous plasma, target-site plasma and target-site tissue concentrations of unbound cefazolin were 36 (±13) ug/mL, 29 (±13) ug/mL and 28 (±13) ug/g, respectively. Concentrations stayed well above the MIC(90) of the staphylococcus aureus for at least 80 minutes. And, except for a positive influence of an alcohol consumption of ≥2 units a day on the tissue concentration of cefazolin (p=0.029), no other predictors were found.
Conclusion	In conclusion, 2g of prophylactic cefazolin demonstrates adequacy in maintaining coverage for a duration exceeding 80 minutes of surgery below the level of the knee, significantly surpassing the MIC(90) required to combat the most pivotal microorganisms.

6

Auteurs	E. Aalbregt, L. Rijken, A.J. Nederveen, P. van Ooij, K. Yeung, V. Jongkind
Abstract titel	**Quantitative Magnetic Resonance Imaging to Assess Progression and Rupture Risk of Aortic Aneurysms: a Scoping Review**
Background	In current practice, the diameter of an aortic aneurysm is utilised to estimate the rupture risk and decide upon timing of elective repair, although it is known to be imprecise and not patient-specific. Quantitative magnetic resonance imaging (MRI) enables the visualisation of several biomarkers that provide information about processes within the aneurysm and may therefore facilitate patient-specific risk stratification. We performed a scoping review of the literature on quantitative MRI techniques to assess aortic aneurysm progression and rupture risk, summarised these findings, and identified knowledge gaps.
Methods	Literature concerning primary research was of interest and the medical databases PubMed, Scopus, Embase and Cochrane were systematically searched. This study used the PRISMA protocol extension for scoping reviews. Articles published between January 2010 and February 2023 involving animals and/or humans were included. Data were extracted by two authors using a predefined charting method.
Results	A total of 1641 articles were identified, of which 21 were included in the scoping review. Quantitative MRI-derived biomarkers were categorised into haemodynamic (eight studies), wall (five studies) and molecular biomarkers (eight studies). Fifteen studies included patients and/or healthy human subjects. Animal models were investigated in the other six studies. A cross-sectional study design was the most common, whereas five animal studies had a longitudinal component and two studies including patients had a prospective design. A promising haemodynamic biomarker is wall shear stress (WSS), which is estimated based on 4D flow MRI. Molecular biomarkers enable the assessment of inflammatory and wall deterioration processes. The ADAMTS4-specific molecular MR probe showed potential to predict abdominal aortic aneurysm (AAA) formation and rupture in a murine model. Wall biomarkers assessed using dynamic contrast-enhanced (DCE) MRI showed great potential for assessing AAA progression independent of the maximum diameter.

Conclusion	This scoping review provides an overview of quantitative MRI techniques studied and the biomarkers derived from them to assess aortic aneurysm progression and rupture risk. Longitudinal studies are needed to validate the causal relationships between the identified biomarkers and aneurysm growth, rupture or repair. In the future, quantitative MRI could play an important role in the personalised risk assessment of aortic aneurysm rupture.

Sessie 2a: Den Nederlanden - en Daar Voorbij
13.00 - 13.45, Concertzaal

Voorzitters:

Roel Bakx

Fenne van den Bunder

1. H. Groenen - The effect of door openings in the operating room on the incidence of surgical site infections: an individual patient data meta-analysis
2. J.R. van Doesburg - Additional value of cervical ultrasonography in the detection of cervical lymph node metastases in patients with esophageal cancer
3. E. Heeling - Snapshot study - DECIDE: Immediate Breast Reconstruction after Mastectomy in the Netherlands
4. B.L. Tran - THE FOREVAR SURVEY: An International Survey on Follow-up Imaging after Endovascular Aneurysm Repair
5. A.A.J. Gruter - Nationwide Standardization of the Minimally Invasive Right Hemicolectomy and Development and Validation of Video-based Competency Assessment Tool (phase 2 of Right Study)

1

Auteurs	H. Groenen, H. Jalalzadeh, R.R. Bahethi, A.A.A. Bediako-Bowan, K. M'lbak, M.A. Bohl, N.M.C. Mathijssen, G. Hannink, B.L. Hollenbeck, F.J. Prakken, N. Wolfhagenå, M.A. Boermeester
Abstract titel	**The effect of door openings in the operating room on the incidence of surgical site infections: an individual patient data meta-analysis**
Background	The influence of door openings in the operating room on the occurrence of surgical site infections (SSI) has been a controversial topic for several years. Many care bundles on the prevention of SSI include limitation of traffic flow, including door openings, as element. However, evidence is limited and heterogeneous. Therefore, the purpose of this individual patient data (IPD) meta-analysis is to evaluate the effect of the number of door openings during surgery in the operating room on the occurrence of SSI.
Methods	We searched PubMed, Embase and Cochrane CENTRAL databases inception to January 26, 2023 for prospective, retrospective, or randomised trials investigating the effect of door openings in the operating room on the incidence of SSI. Authors of eligible studies were invited for collaboration. Individual patient data were merged after validation. Descriptive analyses and one-stage IPD meta-analyses using generalized mixed linear modelling were conducted. This study is registered with PROSPERO, CRD42022309958.
Results	Individual patient data of 1747 patients from seven observational studies were analysed. We found an overall SSI incidence of 9.3%. The incidence of SSI was not significantly increased by additional door openings in the operating room.
Conclusion	In this individual participant data meta-analysis we found no evidence of a relation between the number of door openings in the operating room and the occurence of SSI.

2

Auteurs	J.R. van Doesburg, N. Schuring, M.H.M. Vries, K.M. Duvivier, M.I. van Berge Henegouwen, F. Daams, P. de Graaf, S.S. Gisbertz.
Abstract titel	**Additional value of cervical ultrasonography in the detection of cervical lymph node metastases in patients with esophageal cancer**
Background	External ultrasound for detection of cervical lymph node metastases used to be standard in the diagnostic work-up for esophageal cancer patients in the Netherlands. This study aimed to assess the additional value of cervical ultrasonography over 18F-FDG PET-CT for the detection of cervical lymph node metastases in esophageal cancer patients.
Methods	This retrospective cohort study included all esophageal cancer patients referred to or diagnosed in the Amsterdam UMC between January 2014 and January 2021. Radiology and multidisciplinary team meeting reports were reviewed for presence of suspect cervical lymph node(s). Primary outcome was incidence, etiology and visibility on ultrasound and/or 18F-FDG PET-CT.
Results	This study included 789 patients, with a median age of 67 years. Patients were predominantly male (75.2%) and the majority had an adenocarcinoma (71.7%). Suspected cervical lymph nodes were documented in 170 patients (21.6%), 57 proved malignant (33.5%). Of these malignant lymph nodes, seven (12.3%) were visualized on ultrasound, but negative on 18F-FDG PET-CT. One was detected with 18F-FDG PET-CT but not visualized on ultrasound. Lymph node biopsy was conducted for 150 out of 170 patients. Of those, 79 proved benign. 60 patients underwent biopsy for a benign cervical lymph node suspected on ultrasound but negative on 18F-FDG PET-CT.
Conclusion	As 12.3% of malignant cervical lymph nodes were only visualized with ultrasound, but negative on 18F-FDG PET-CT, cervical ultrasound is of additional value in the detection of cervical lymph node metastases. However, routine cervical ultrasound also attributes to the number of biopsies taken for benign lesions.

3

Auteurs	E. Heeling, G. M. Kramer, J. H. Volders, I. M. C. van der Ploeg, M. J. Hoornweg, M. J. T. F. D. Vrancken Peeters
Abstract title	**Snapshot study - DECIDE â€“ Immediate Breast Reconstruction after Mastectomy in the Netherlands**
Background	Annually, approximately 6.000 patients with invasive ductal carcinoma in situ (DCIS) or invasive breast cancer undergo a mastectomy in the Netherlands. Preserving the breast contour after a mastectomy can be achieved through immediate or delayed reconstruction and has a positive impact on the quality of life. Data from the National Breast Cancer Audit from 2020 demonstrates a large variation between Dutch hospitals in the application of immediate breast reconstruction (IBR). The aim of this study is to provide an updated overview of current incidence and decision-making process regarding IBR after mastectomy.
Methods	The DECIDE study is a national, multicenter SNAPSHOT study (www.decidestudie.com). Snapshot studies are an innovative form of collaborative research and have a hypotheses-generating design, without restraining too many in- or exclusion criteria. Thereby, snapshot studies generate a population-based overview, which rapidly provides insight in current clinical practice on a national scale. All hospitals providing breast cancer care in the Netherlands will be approached. Female patients undergoing a mastectomy with or without IBR for either DCIS or invasive breast cancer will be included for one year. Data concerning the indication for mastectomy, the reasons for (not) performing IBR, and the final advice for IBR will be collected. We evaluate the final breast contour preservation rate after 5 years.
Results	The primary outcomes are the incidence of IBR after mastectomy and the factors influencing the decision-making process regarding IBR. Secondary outcomes are short-term complications after 60 days and the final breast contour preservation rate after 5 years.

Conclusion	This snapshot study aims to provide an overview of the current incidence and factors influencing the decision-making process regarding IBR after mastectomy in the Netherlands. We hope to gain knowledge about the possible causes of the variation in the application of IBR and to propose potential solutions.

4

Auteurs	B.L. Tran, V. Jongkind, M. Hoebink; On behalf of the European Vascular Research Collaborative*
Abstract titel	**THE FOREVAR SURVEY: An International Survey on Follow-up Imaging after Endovascular Aneurysm Repair**
Background	Perioperative mortality after abdominal aortic aneurysm (AAA) repair has significantly decreased since endovascular aneurysm repair (EVAR) was introduced. However, patients treated with a minimally invasive approach are more likely to experience long-term aortic complications and re-interventions than those undergoing open surgical repair. Endoleaks occur in one-third of the cases after EVAR for AAA. The value of follow-up imaging after EVAR is debatable, since routine imaging follow-up can also have negative effects on patients, including morbidity and mortality from corrective interventions and the use of radiation. The aim of this survey is to make an inventory of the variation in follow-up imaging protocols after standard and complex EVAR amongst vascular surgeons, interventional radiologists, and vascular surgery trainees in different centers worldwide.
Methods	A web-based survey via the platform SurveyMonkeyÂ® was conducted from September 2022 until April 2023. The online survey was created in English and dispersed through e-mail, social media promotion, and direct messaging.
Results	868 responses were collected through the FOREVAR Survey from 65 countries worldwide. Most participants have a standardized follow-up imaging protocol for all patients, and all vascular surgeons, in their practice for the standard, elective EVAR (N=448; 51.6%). 18 respondents had no standard protocol (N=18; 2.0%). 549 respondents also practice complex EVAR (F-BEVAR) in their center (N=549; 63.2%). Most of these centers implemented the standard imaging follow-up protocol after EVAR for the complex EVAR (N=412; 75.18%). 511 participants also practice TEVAR in their center of practice (N=511; 58.9%) and implemented the same standard imaging follow-up protocol for TEVAR as the standard EVAR (N=389; 76.42%).
Conclusion	A worldwide survey on the follow-up imaging protocol after EVAR was dispersed. The FOREVAR Survey has identified similarities and differences between the imaging protocols implemented in different medical centers and countries.

5

Auteurs	A.A.J. Grüter, B.R. Toorenvliet, E.H.J. Belgers, E.J.T. Belt, P. van Duijvendijk, C. Hoff, R. Hompes, A.B. Smits, A.W.H. van de Ven, H.L. van Westreenen, P.J. Tanis, J.B. Tuynman
Abstract titel	**Nationwide Standardization of the Minimally Invasive Right Hemicolectomy and Development and Validation of Video-based Competency Assessment Tool (phase 2 of Right Study)**
Background	Currently, substantial variation is present in the surgical performance of a minimally invasive right hemicolectomy (MIRH). The aim of this study was to reach national consensus about the most optimal and standardized surgical technique for MIRH and to develop and validate a video-based competency assessment tool (CAT) to assess MIRH.
Methods	The standardization of MIRH was accomplished using a three-round Delphi method, with the first 2 rounds being online and the last physically with 76 colorectal surgeons. A systematic review on all the elements of MIRH was utilized together with opinions from European experts in MIRH to draw up 24 detailed statements for the Delphi rounds. A CAT was developed using the Delphi results and 12 unedited full-length videos of the Right study's database were all assessed by 9 different expert colorectal surgeons validating the CAT using intra-class correlation coefficient (ICC).
Results	After 3 rounds, at least 80% consensus has been reached on 23 of the 24 statements. Consensus statements included the use of low-pressure pneumoperitoneum, the performance of a complete mesocolic excision (CME) with detailed definitions and steps how to achieve central vascular ligation (CVL) and D2 lymphadenectomy, the creation of an intracorporeal anastomosis, and the extraction of the specimen through a Pfannenstiel incision with the use of a wound protector. The CAT consists of 7 consecutive steps, starting with "Setup and exposure of the operating field" and ending with "Anastomosis". The CAT was validated with a high consistency amongst surgeons with an overall ICC of 0.923.
Conclusion	Nationwide standardization and optimization of the MIRH for right-sided colon cancer for the Right study was reached with detailed description of procedural steps. An objective detailed CAT was developed and validated to evaluate learning curves and implementation of the standardized MIRH in the Netherlands with the goal to improve clinical outcomes.

Sessie 2b: Classificaties: van Chaos naar Categorie 13.00 - 13.45, Teekenzaal

Voorzitters:

Jens Halm

Niels Wolfhagen

1. J.R. Meijering - Challenges regarding patient inclusion in International Clinical Research
2. F.H. Erdmann - Prediction of recurrence for grade 1-2 small bowel neuroendocrine neoplasms after curative intended resection
3. S.P.G. Henckens - Recurrence and survival after minimally invasive and open esophagectomy for esophageal cancer – a post hoc analysis of the ENSURE study
4. E.W. Ingwersen - Radiomics preoperative-Fistula Risk Score (RAD-FRS) for pancreatoduodenectomy: development and external validation
5. S.L.M. Zwetsloot - Protocol for the development of a core outcome set for intermittent claudication: a systematic review and Delphi study

1

Auteurs	J.R. Meijering, dr. R. Hoencamp, dr. J.H. Nederhoed, prof. dr. R.A. van Hulst, prof. dr. D.T. Ubbink
Abstract titel	**Challenges regarding patient inclusion in International Clinical Research**
Background	In the last decades technology has developed to an extend that makes international trials more accessible with limited resources. At the same time rules and regulations in clinical research and monitoring have become more prevalent to ensure research quality and patient safety. To assess the challenges and difficulties in international clinical trials, the study team of the DIONYSIUS-trial1, regarding the effect of hyperbaric oxygen treatment on patients with ischaemic diabetic foot ulcers, has kept track of the various issues encountered while performing a multinational multicentre randomized controlled trial.
Methods	Since the start of the internationalization process of the trial records were kept for various countries of objections, obstacles and delays in participating or initiating the DIONYSIUS trial, whether it was because of bureaucratic, financial or cultural reasons. Feasibility was also taken into account, with consideration for available personnel as well as technological and medical availability.
Results	Australia was unable to join the trial, due to lack of funds, despite multiple grant requests made by the Australian collaborators. The Republic of South Africa could not participate without external funds, which could not be provided. Italy did not have the personnel to handle the requests for local ethical permission or to provide sufficient follow-up. Curacao is still in the process of joining the trial, despite well over a year of intensive assistance form the research team in gaining permission to start including patients. Even in collaborators issues were found regarding data collection and patient screening and inclusion.
Conclusion	International multicentre trials are prone to encountering difficulties in its execution. It is important to consider the obstacles and the time required to overcome them. When setting up an international trial, consider the collaborators not just for enthusiasm in participation, but make sure that they have the means, time and personnel necessary.

2

Auteurs	F.H. erdmann, E. kaçmaz, E.J.M. nieveen van dijkum, A.F. engelsman
Abstract titel	**Prediction of recurrence for grade 1-2 small bowel neuroendocrine neoplasms after curative intended resection**
Background	In patients with grade 1 to 2 SB-NEN reccurrence rates are reported up to 50%. No tools exist yet to identify patients at high-risk for recurrence in SB-NENs.
Methods	Patients with grade 1-2 SB-NEN who underwent curative intended resection in eight different European institutions were retrospectively identified. Patients were excluded if they were not diagnosed with grade 1-2 SB-NEN or if recurrence dates were missing. Multivariate Cox regression analysis was performed to identify independent prognostic factors for 5-year RFS. An internally validated nomogram was constructed based these factors and assessed by means of discrimination, calibration, and clinical utility.
Results	. Out of 173 patients included, 45 (26%) experienced loco-regional or distant recurrence with a mean 5-year RFS of 59%. Age, presence of distant metastasis and T-status were identified as independent prognostic factors. A nomogram was constructed based on these factors. Internally validated discrimination (concordance index 0.71 [95% CI 0.62 – 0.80]), calibration and clinical utility demonstrated the nomogram's ability to identify high-risk patients (RFS 10 – 50%) for 5-year recurrence.
Conclusion	Age, presence of distant metastasis and T-status can be used as independent factors in this nomogram to identify high-risk patients for 5-year RFS after curative intended resection. The nomogram's limitation to identify low-risk patients warrants future research including additional variables and external validation. Clinical trials should be set-up in the future based on these identifaction models to assess possibilities of adjuvant treatment in high-risk patients.

3

Auteurs	S.P.G. Henckens, N. Schuring, J.A. Elliott, A. Johar, S.R. Markar, A. Gantxegi, P. Lagergren, G.B. Hanna, M. Pera, J.V. Reynolds, M.I. van Berge Henegouwen, S.S. Gisbertz, on behalf of the ENSURE study group
Abstract titel	**Recurrence and survival after minimally invasive and open esophagectomy for esophageal cancer – a post hoc analysis of the ENSURE study**
Background	The optimum oncologic surgical approach to esophageal and junctional cancer is unclear. The aim of this study was to determine the impact of operative approach (open [OE], hybrid [HMIE] and total minimally invasive esophagectomy [TMIE]) on operative and oncologic outcomes for patients treated with curative intent for esophageal and junctional cancer.
Methods	This secondary analysis of the European multicenter ENSURE study includes patients undergoing curative-intent esophagectomy for cancer between 2009–2015 across 20 high-volume centers. Primary endpoints were disease-free survival (DFS) and the incidence and location of disease recurrence. Secondary endpoints included among others R0 resection rate, lymph node yield and overall survival (OS).
Results	In total, 3,199 patients were included. Of these, 55% underwent OE, 17% HMIE and 29% TMIE. DFS was independently increased post TMIE (HR 0.86 [95% CI 0.76-0.98], p=0.022) compared with OE. Multivariable regression demonstrated no difference in absolute locoregional recurrence risk according to operative approach (HMIE vs. OE OR 0.79, p=0.257, TMIE vs. OE OR 0.84, p=0.243). The probability of systemic recurrence was independently increased post HMIE (OR 2.07, p=0.031), but not TMIE (OR 0.86, p=0.508). R0 resection rates (p=0.005) and nodal yield (p<0.001) were independently increased after TMIE, but not HMIE (p=0.424; p=0.512) compared with OE. OS was independently improved following both HMIE (HR 0.79, p=0.009) and TMIE (HR 0.82, p=0.003) as compared with OE.
Conclusion	In this European multicenter study, TMIE was associated with improved surgical quality and DFS, while both TMIE and HMIE were associated with improved OS as compared with OE for esophageal cancer.

4

Auteurs	E.W. Ingwersen, J.I. Bereska, A. Balduzzi, B.V. Janssen, R. de Robertis, F Struik, C.Y. Nio, J. Stoker, M.G. Besselink, H.A. Marquering, I. Verpalen, F. Daams
Abstract titel	**Radiomics preoperative-Fistula Risk Score (RAD-FRS) for pancreatoduodenectomy: development and external validation**
Background	Accurately predicting the risk of clinically relevant postoperative pancreatic fistula (CR-POPF) after pancreatoduodenectomy prior to surgery may assist surgeons in making more informed treatment decisions and improved patient counseling. The aim was to evaluate the predictive accuracy of a radiomics-based preoperative-Fistula Risk Score (RAD-FRS) for CR-POPF.
Methods	Radiomic features were derived from preoperative CT scans from adult patients after pancreatoduodenectomy at a single center in the Netherlands (Amsterdam, 2013 -2018) to develop the RAD-FRS. Extracted radiomic features were analyzed with four machine learning classifiers. The model was externally validated in a single center in Italy (Verona, 2020 – 2021). The RAD-FRS was compared to the Fistula Risk Score (FRS) and the updated alternative Fistula Risk Score (ua-FRS).
Results	Overall, 359 patients underwent a pancreatoduodenectomy, of whom 89 (25%) developed a CR-POPF. The RAD-FRS model was developed using CT scans of 118 patients, of which three radiomic features where included in the random forest model, and externally validated in 57 patients. The model performed well with an area under the curve (AUC) of 0.90 (95% CI: 0.71 – 0.99) and 0.81 (95% CI: 0.69 – 0.92) in the Amsterdam test set and Verona dataset, respectively. The RAD-FRS performed similarly to the FRS (AUC 0.79) and ua-FRS (AUC 0.79).
Conclusion	The RAD-FRS, which uses only preoperative CT features, is a new and promising radiomics-based score that has the potential to be integrated with hospital CT report systems and improved patient counseling preoperatively. The model with underlying code is readily available via www.pancreascalculator.com and www.github.com/PHAIR-Consortium/POPF-predictor.

5

Auteurs	S.L.M. Zwetsloot, V. Jongkind, K.K. Yeung
Abstract titel	**Protocol for the development of a core outcome set for intermittent claudication: a systematic review and Delphi study**
Background	Currently, it is unknown which patients suffering from peripheral arterial disease (PAD) and an abdominal aortic aneurysm (AAA) will experience disease progression or develop adverse cardiovascular events. VASCUL-AID is an European Horizon-sponsored research project that aims to build an AI-driven user interface to adequately predict PAD and AAA progression. This tool will help patients alter their own disease course by offering tailored feedback. As a first step in this multi-year project, clinically relevant and patient-reported outcomes need to be identified. Literature on PAD is heterogeneous and lacks standardization. Therefore, the main objective of the current study is to create consensus among patients, clinical specialists and researchers on a list of core outcomes that should be applied to all future research on intermittent claudication (IC).
Methods	The study will be conducted in three phases; the first being a systematic review identifying all outcomes related to conservative, endovascular, and operative treatment of IC (Fontaine classification II and III); the second a three-step Delphi study stakeholders to create a list of outcomes regarded as most important; the third an expert panel meeting finalizing the definitive core outcome set (COS). Stakeholders will include patients (n=40) and vascular specialists (n=40) from each of our European participating centers. In developing this COS, we adhere to the Core Outcome Set-STAndards for Development (COS-STAD) recommendations and the Core Outcome Measures in Effectiveness Trials (COMET) Handbook. The COS will be published in accordance with the COS-STAndards for Reporting statement. For the Delphi study, recommendations as reported by Sinha et al. will be complied with. The final COS will consist of a maximum of ten outcomes. These outcomes will be utilized for the consecutive retrospective and prospective studies.

Sessie 2c: Laat Me, opereren!
13.00 - 13.45, Shaffyzaal

Voorzitters:

Annebeth de Vries

Sebastian Sparenberg

1. A.J.M. Pronk - Semiflex assisted vacuum therapy for perianal abscesses/ sinuses and fistula: study protocol for a pilot study
2. D.W. van Oyen - Practice variation in perioperative care for patients undergoing anatomical lung resection for non-small cell lung cancer on patient outcomes – preliminary results
3. M.E. Bakker - Kinesiotaping for Acute Pain Due to Uncomplicated Traumatic Injury of the Shoulder or Chest Wall
4. K.O. Kappe - Outcomes of the Viabahn Balloon-Expandable Endoprosthesis as Bridging Stent-Graft for Fenestrated- and Branched Endovascular Aortic Repair
5. P.M. Rodriguez Schaap - Validation of third and second harmonic generation microscopy for the assessment of fresh thyroid tissue

1

Auteurs	E.M. Meima- van Praag*, A.J.M. Pronk*, V. Bellato, T. Banasiewicz, S. Madelska, C.J.Buskens on behalf of the Semiflex Research Group
Abstract titel	**Semiflex assisted vacuum therapy for perianal abscesses/ sinuses and fistula: study protocol for a pilot study**
Background	Perianal fistulas and abscesses are a common, invalidating problem for which a more effective and widely applicable treatment is necessary. Vacuum therapy has become one of the main pillars for management of a wide variety of wound healing problems. A novel catheter set was developed for vacuum therapy of perianal abscesses and fistulas: the Semiflex Dome Catheter System. With this study, we aim to test the feasibility and efficacy of the novel catheter set for vacuum therapy of perianal abscesses and fistulas.
Methods	This is a prospective, multicentre, pilot study. Patients > eighteen years with perianal abscess(es), perianal/pararectal sinus, or perianal fistula are eligible for inclusion. A Semiflex catheter is inserted under general anaesthesia in patients with a perianal fistula after closure of the internal opening or in patients with a perianal abscess/sinus. The Semiflex catheter is fixed using a Renasys Adhesive gel patch and is connected to a vacuum pomp with a vacuum pressure of 80 or 125 cm H2O. Every other day, the Semiflex catheter will be exchanged for a smaller and shorter Semiflex catheter in the outpatient setting. The therapy is continued for a maximum of four weeks until the fistula tract or abscess/sinus is practically closed. The primary objective of the study is the feasibility of the methodology with respect to smoothness of insertion and changing of the Semiflex catheters, capability of proper fixation of the Semiflex catheter, maintaining vacuum for more than 48 hours, and compliance to the therapy in terms of pain and discomfort.
Conclusion	The Semiflex pilot study is a prospective, multicentre, feasibility study of patients with perianal abscesses/sinuses or perianal fistula. Once this study shows positive results on the feasibility and efficacy of the Semiflex Dome Catheter System, management of perianal fistulas and abscesses could change.

2

Auteurs	D.W. van Oyen, R. van den Berg, G.M.H. Marres, E.M. von Meyenfeldt, W.H. Schreurs, H.J. Bonjer
Abstract titel	**Practice variation in perioperative care for patients undergoing anatomical lung resection for non-small cell lung cancer – preliminary results**
Background	Practice variation in perioperative care for lung resection patients, in absence of a national guideline, is thought to be responsible for variation in clinical outcomes. Publication of the Enhanced Recovery After Surgery (ERAS) Society/European Society of Thoracic Surgeons (ESTS) guidelines for lung surgery in 2019 provided an evidence-based set of recommendations concerning elements of perioperative care for lung resection patients. This study aims to gain insight into practice variation regarding these elements in Dutch surgical centres in 2018, the year prior to guideline publication, and to demonstrate the effect of practice variation on clinical outcomes.
Methods	Descriptive statistics from 8 centres were used to determine practice variation and outcome measures (Length Of Stay (LOS) and 90-day mortality) in this preliminary analysis. For every centre, the percentage of patients already treated according to the ERAS/ESTS guidelines (compliance rate) was determined per perioperative care element. Missing values were interpreted as not complied.
Results	N=385 patients were included in this preliminary analysis. As expected, some ERAS/ESTS recommendations were already applied, varying between centres (Figure 1). Recommendations 'carbohydrate drink' and 'peroperative normothermia' had the lowest compliance rate (22% and 32,2%), 'no preoperative sedation' and 'antibiotic prophylaxis' had the highest compliance rate (96,6% and 96,5%). Most variation between centres was seen for 'carbohydrate drink' (1,5% to 100%). In 2018, LOS ranged from 3 to 8 days (Figure 1). The 90-day mortality ranged from 0% to 7,7%.

Conclusion	This preliminary study shows that practice variation in perioperative care exists between hospitals in 2018. Indeed, we also saw variation in outcome. Whether practice variation is related to variation in outcome and whether the implementation of an Enhanced Recovery After Thoracic Surgery (ERATS)-protocol in the Netherlands indeed reduces practice variation leading to less variation in patient outcomes is currently being studied in the ERATS-study. The results are expected in 2024.

3

Auteurs	M.E. Bakker, V.J.J. Bon, B.P.M. Huybrechts, S. Scott, M.M.S. Zwartsenburg, J.C. Goslings
Abstract titel	**Kinesiotaping for Acute Pain Due to Uncomplicated Traumatic Injury of the Shoulder or Chest Wall**
Background	Traumatic injuries of the shoulder or chest wall are commonly treated in the Emergency Department (ED). A complementary treatment is kinesiotaping, an elastic tape often used to treat musculoskeletal dysfunction and pain. However, the added pain-reducing effect of kinesiotape in comparison to standard conservative treatment is unknown. The aim of this study was to determine the effect of kinesiotaping on pain relief compared to standard treatment with pain medication and immobilization in patients with uncomplicated traumatic injury of the shoulder or chest wall in the ED.
Methods	A pilot randomized controlled trial (RCT) was conducted in the ED of a teaching hospital in the Netherlands from January 2021 until the end of March 2021. Patients diagnosed with uncomplicated isolated rib fractures, rib contusions, clavicle fracture, disruption of the AC joint and fracture of the proximal humerus were assigned to two treatment groups. The control group received the standard treatment with oral analgesics (acetaminophen q6h 1000 mg and NSAID (according to prescription) and if shoulder injury also a sling. The intervention group received kinesiotaping in addition to the same standard treatment. Pain intensity was measured with 0-10 Numeric Rating Scale (NRS) just before treatment (T1) and after 15 min (T2). On day 4 both groups were assessed with NRS in a follow up phone call (T3).
Results	A total of 251 patients presented with traumatic injury of the shoulder or chest wall in the study period, 85 patients were approached to participate and 2 of them were excluded. The remaining 83 were randomly allocated to kinesiotaping (n = 40) or control group (n = 43), 57 of them completed the study and had sufficient data for complete analysis In both groups, pain intensity after 15 min and 4 days significantly reduced compared with baseline. Regarding the reduction of pain intensity on day 4, kinesiotaping was significantly superior compared to the control group with a difference in pain reduction of 2.45 compared with 0.88 in control group (p = 0.018).

Conclusion	Compared to standard treatment alone, kinesiotaping combined with standard care appears to be more effective in terms of acute pain reduction in patients with uncomplicated traumatic injury of the shoulder or chest wall. Further research is recommended.

4

Auteurs	K.O. Kappe, S.E.M. van Knippenberg, B.L. Tran, R.J. Lely, B.B. van der Meijs, J.D. Blankensteijn, R. Balm, J.H. Nederhoed, V. Jongkind, A.W.J. Hoksbergen, K.K. Yeung
Abstract titel	**Outcomes of the Viabahn Balloon-Expandable Endoprosthesis as Bridging Stent-Graft for Fenestrated- and Branched Endovascular Aortic Repair**
Background	Bridging stent-grafts implanted during fenestrated and branched endovascular aortic repair (F/B-EVAR) are crucial for the successful exclusion of the aortic aneurysm. The aim of this study was to analyze the outcomes of the Gore Viabahn VBX stent-graft as bridging stent for renal and visceral target vessels during F/B-EVAR.
Methods	We collected data of all consecutive patients undergoing F/B-EVAR that were treated with at least one VBX stent-graft as a bridging stent in the Amsterdam University Medical Centers from January 2019 to May 2023. Patients were treated for thoraco-abdominal or complex abdominal aortic aneurysms. The procedural, radiological and follow-up data of the included patients were retrospectively reviewed. Primary outcome of the study was technical success for VBX stent-graft implantation, defined as successful catheterization, placement and deployment of the VBX stent-graft in the intended target vessels. Furthermore, VBX-related endoleaks, stenoses and occlusions during follow-up were reported.
Results	A total of 274 VBX stent-grafts were implanted for 263 target vessels in 38 FEVAR, 46 BEVAR and 3 F/B-EVAR (combined design) stent-grafts in 87 patients (75% male; mean age, 73 ± 7 years). Technical success of VBX stent-graft implantation was 97.5% (273 out of 280 implantation attempts). Post-operative radiological evaluation of 239 VBX stent-grafts was available for analysis. The patency of the VBX stent-grafts was 98.3% (235/239) after a median follow-up of 12 months. During follow-up, VBX-related adverse events that required re-intervention occurred in 2.9% (7/239): two type 1c endoleaks, two type 3c endoleaks, two in-stent stenoses and one occlusion.
Conclusion	VBX stent-graft implantation as a bridging stent during F/BEVAR has a high technical success and show excellent patency as bridging stent-grafts in F/BEVAR with a low number of complications requiring re-intervention. Long term follow-up data are awaited.

5

Auteurs	S.D. Kok, P.M. Rodriguez Schaap, L. van Dommelen, L.M.G. van Huizen, C. Dickhoff, E.J.M. Nieveen-van Dijkum, A.F. Engelsman, P. van der Valk, M. L. Groot
Abstract titel	**Validation of third and second harmonic generation microscopy for the assessment of fresh thyroid tissue**
Background	During thyroid surgery fast and reliable intra-operative pathological feedback has the potential to avoid a two-stage procedure and significantly reduce morbidity and health care costs in patients undergoing a diagnostic hemithyroidectomy (HT). However, current techniques often fail to provide reliable results within the operation time. The use of Higher Harmonic Generation Microscopy (HHGM) provides a potential solution to this problem. HHGM combines third harmonic generation (THG), second harmonic generation (SHG) and multiphoton excited autofluorescence (MPEF).
Methods	In this study, a compact, portable microscope was used to record images of freshly excised healthy thyroid-tissue: benign nodules (follicular adenoma) and malignant tissue (papillary carcinoma, follicular carcinoma and spindle cell carcinoma). The THG/SHG/MPEF images were generated within a few minutes and were compared with the images from frozen section analysis and standard histology.
Results	The THG/SHG/MPEF images show relevant morphological thyroid structures in good accordance with the histology images. The thyroid follicle architecture, cells, cell nuclei (THG), collagen organization (SHG) and the distribution of thyroglobulin and/or thyroid hormones T3 or T4 (MPEF) could be visualized.
Conclusion	We conclude that THG/SHG/MPEF imaging is a promising tool for clinical intraoperative assessment of thyroid tissue. More patients need to be included, to assess the feasibility of HHGM to determine essential features for intra-operative thyroid cancer diagnosis such as capsular or vascular invasion.

Sessie 2d: Laparos: het Ontwerp Binnenste Binnen Keren 13.00 - 13.45, Huslyzaal

Voorzitters:

Ramon Gorter

Kelly Dreuning

1. D. Docter - Studying surgical anatomy of Anorectal malformations through micro-CT imaging
2. M.F.G. Francken - Preventing recurrent 'idiopathic' acute pancreatitis through laparoscopic cholecystectomy (PICUS-2): a multicenter randomized trial': Dutch Pancreatitis Study Group
3. M.H. Simon - Burn injuries and acute burn management in the rural areas in northern Bangladesh – a household survey
4. B.A. Uijterwijk - International multidisciplinary consensus guidelines on the optimal pathology assessment and multidisciplinary pathways of non-pancreatic neoplasms in and around the ampulla of Vater (PERIPAN)
5. A.M. Rahimi - Advanced Laparoscopic Suturing training: the price you pay for barbed sutures vs. multifilament sutures.

1

Auteurs	D. Docter B.S. de Bakker L.W.E. van Heurn R.R. Gorter
Abstract titel	**Studying surgical anatomy of Anorectal malformations through micro-CT imaging**
Background	Anorectal malformations (ARM) constitute a spectrum of congenital disorders impacting the anal-rectal complex, leading to defecation difficulties. The advent of the Anterior/Posterior Sagittal Anorectoplasty (A/PSARP) surgical procedure marked significant progress in ARM management. Nevertheless, three decades later, patients still suffer from high rates of incontinence and obstipation. The precise functional anatomy and embryology of this complex area remain topics of debate. Our study employs micro-CT imaging, a revolutionary non-destructive X-ray-based technique capable of ultra-high-resolution 3D imaging, to provide new insights into ARM morphology, with the aim of refining surgical techniques.
Methods	Twelve ARM patients underwent A/PSARP and surgically excised fistulae were collected. As healthy controls, we utilized three fetal pelvises from the Dutch Fetal Biobank. All samples were fixed using 4% paraformaldehyde (PFA) and stained with 3.75% B-Lugol for 48 hours. Scan acquisition was performed using the GE Phoenix Nanotom M tomographer (Waygate Technologies, Wunstorf, Germany). Scans had a voxel size ranging from 4-6 micrometers and were 3D reconstructed using Amira Software. After four weeks of destaining in 0.2% PFA, we conducted histology using Hematoxylin and Eosin staining to validate scan results.
Results	All specimens exhibited normal rectal wall development similar to fetal samples. The mucosa contained crypts with goblet cells, resembling simple columnar epithelium. Distally, it transitioned to stratified squamous epithelium. Muscle fibers, arranged circularly in the sample wall, indicated a developed intrinsic sphincter. Histological examination confirmed these findings and revealed innervation of the muscle.
Conclusion	Micro-CT is a promising technique for researching surgical anatomy by providing microscale resolution 3D imagery in a non-destructive fashion. Our findings suggest that the resected fistula during A/PSARP may contain vital elements for continence and normal defecation. This challenges current surgical practices for ARM and calls for a reconsideration of techniques to preserve these structures, potentially improving patient outcomes in the process.

2

Auteurs	M.F.G. Francken, D.S. Umans, D. Boerma, L.M.J.W. van Driel, R.C. Verdonk, S.A.W. Bouwense, M.W.J. Stommel, H.C. van Santvoort, R.P. Voermans, M.G.W. Dijkgraaf, J.E. van Hooft, M.G. Besselink for the Dutch Pancreatitis Study Group
Abstract titel	**Preventing recurrent 'idiopathic' acute pancreatitis through laparoscopic cholecystectomy (PICUS-2): a multicenter randomized trial': Dutch Pancreatitis Study Group**
Background	Acute pancreatitis is diagnosed in 6,500 patients yearly in the Netherlands. In up to 25% of patients no definitive cause can be determined after routine work-up including endoscopic ultrasound and this is deemed to be idiopathic acute pancreatitis (IAP) and has a high recurrence rate. It is hypothesized that microlithiasis/ sludge, a type of biliary pancreatitis, is the most common cause of IAP. Laparoscopic cholecystectomy (LC) is highly effective in preventing recurrence of biliary pancreatitis. Currently no randomized trial has compared LC with conservative treatment in patients with IAP after adequate work-up including endoscopic ultrasound.
Methods	Multicenter randomized controlled trial in 42 centers in the Netherlands and 4 centers in Norway, Sweden, Germany and Italy including adult patients with a first episode of 'EUS-negative' IAP. Patients will be randomized (1:1) to receive either LC or conservative treatment. Patients will be followed for one year after randomization. The primary endpoint is recurrent acute pancreatitis. Secondary endpoints include biliary events, complications of LC, number and severity of recurrent episodes of pancreatitis, quality of life (QALY), costs (hospital and societal) and cost-effectiveness.
Results	Overall, 262 patients will be randomized in 46 centers during a period of 2-3 years.
Conclusion	PICUS-2 is a multicenter randomized trial which will assess the effectiveness of LC as compared to conservative treatment in patients after a first episode of 'EUS-negative' IAP. Our trial will provide evidence whether LC is an effective treatment for IAP.

3

Auteurs	M.H. Simon, , Mahbub Ur Rahman Ujjal, M. Botman, C. van Hövell tot Westerflier, Mehbub Shariar Shishir, A. Meij-de Vries
Abstract titel	**Burn injuries and acute burn management in the rural areas in northern Bangladesh – a household survey**
Background	Burn injuries pose a significant public health challenge, especially in low- and middle-income countries (LMICs). In Bangladesh, burn injuries are prevalent and often result in severe disability or death. However, knowledge regarding the causes of burn injuries, about acute burn management, and about barriers to seek burn care in the char areas of northern Bangladesh is limited.
Methods	We conducted a questionnaire-based study in eight randomly selected subunits and five randomly selected districts in northern Bangladesh to determine the prevalence, causes, and management of burn injuries in these areas. A total of 210 individuals from different households were interviewed, which represented a population of 1020 persons.
Results	Among the respondents, 55% reported that at least one member of their household suffered from a burn injury in the past. The most common causes of burn injuries were open fire (41.7%) and hot liquids (32.6%). More than 40% of burns were not rinsed with water directly after sustaining the injury. Additionally, almost 30% of respondents did not seek medical care immediately after the injury, with financial constraints being the most commonly cited reason.
Conclusion	Burn injuries are a significant public health concern in northern Bangladesh, with open fires and hot liquids being the most common causes. There is a low rate of adequate cooling and seeking medical care. The need for basic knowledge on prevention and treatment of burn injuries and improved access to affordable health care services in the region is high.

4

Auteurs	M. Abu Hilal, B.A. Uijterwijk, D.H.L Lemmers, B.V. Janssen, M.G. Besselink, B. Groot Koerkamp, A. Fariña, J. Verheij, H. Wilmink, H. Asbun, V. Adsay, C. Verbeke
Abstract titel	**International multidisciplinary consensus guidelines on the optimal pathology assessment and multidisciplinary pathways of non-pancreatic neoplasms in and around the ampulla of Vater (PERIPAN)**
Background	The absence of multidisciplinary workflow guidelines and clear definitions and classifications for non-pancreatic neoplasms in and around the ampulla of Vater, including distal cholangiocarcinoma, duodenal carcinoma, and the (intestinal/pancreatobiliary/mixed/hybrid) subtypes of ampullary cancer, results in inconsistencies in research and impacts patient care. These international multidisciplinary consensus guidelines aimed to standardize the multidisciplinary diagnostic workflow and to achieve consensus on uniform definitions and classifications in order to improve patient care and unify future research.
Methods	The consensus questions consisted of two parts, the multidisciplinary team (MDT) guidelines and the pathology guidelines. The Scottish Intercollegiate Guidelines Network methodology (SIGN), including the Delphi methodology, to achieve consensus and the AGREEII tool for quality assessment and external validation were used to create evidence-based consensus guidelines. 45 experts (pathologists, oncologists, surgeons, gastroenterologists, radiologists) from 12 countries were invited based on their expertise in this topic.
Results	In total, 37.061 articles were screened of which 229 were included for final literature assessment. Based on the latter and the expert teams' expertise, 39 consensus questions with 57 recommendations were created for eight multidisciplinary pathway and eight pathology topics, through three Delphi rounds. The PERIPAN consensus guidelines were presented and externally validated in an open access conference.

Conclusion	The PERIPAN MDT guidelines provide clear agreements for optimal multidisciplinary patient workflow whereas the PERIPAN pathology guidelines provide clear definitions and classification criteria for patients with non-pancreatic neoplasm in and around the ampulla of Vater. Utilizing these guidelines, standardized information transmission and specimen handling across specialists and uniform definitions and classification will improve patient outcomes and future research, ultimately leading to tailored treatment for each specific type of cancer in the periampullary region.

5

Auteurs	A. M. Rahimi, T. Kamra, S. Hardon, H.J. Bonjer, T.Horeman, Freek Daams
Abstract titel	**Advanced Laparoscopic Suturing training: the price you pay for barbed sutures vs. multifilament sutures.**
Background	Laparoscopic suturing is a fundamental surgical skill that requires extensive training. The introduction of barbed sutures has simplified laparoscopic suturing; however, mastering these techniques necessitates adequate simulation training. This study aimed to develop advanced suturing training tasks for intestinal anastomosis and vaginal cuff repair using both multifilament and barbed sutures, while objectively measuring differences in tissue manipulation between these suture types.
Methods	This prospective cohort study involved 14 European training hospitals, with participants including junior surgical residents (n=35) and experienced laparoscopic surgeons (n=18) for intestinal anastomosis, as well as experienced laparoscopic gynecologists (n=10) for vaginal cuff repair. The Lapron box trainer provided feedback on tissue manipulation, path length, instrument efficiency, and time. Participants performed laparoscopic intestinal anastomosis and vaginal cuff repair on artificial tissue using both multifilament sutures and V-loc.
Results	For intestinal anastomosis, novices using V-loc sutures demonstrated reduced maximum impulse, force volume, total path length, volume of motion, and total time but exhibited higher mean force compared to multifilament sutures. In experts, V-loc sutures significantly reduced total path length and total completion time while increasing mean force. In vaginal cuff repair, V-loc sutures resulted in a shorter total path length and total completion time. Maximum force, mean force, standard deviation of force, and force volume were also increased with V-loc sutures.
Conclusion	V-loc suture material demonstrated advantages over traditional multifilament suture material by reducing path length, completion time, and increasing mean force and stability for both intestinal anastomosis and vaginal cuff repair. The differences in tissue manipulation underscore the importance of objective performance assessment to guide training and proficiency standards in laparoscopic suturing.

Sessie 3a: Holl(t)en of Stilstaan
14.15 - 15.00 Concertzaal

Voorzitters:

Carla Marres

Anouk Latenstein

1. D.C. van der Aa - Preventing chyle leakage following minimally invasive esophagectomy: efficacy and feasibility of Indocyanine green fluorescence lymphography
2. S.P. van Streun - The development of fecal continence in children surgically treated for Hirschsprung disease.
3. J. Tausenfreund - Determination of pathogens in surgical site infections in ankle fractures and implications for empiric antibiotic treatment
4. M. Boeijenga - In-vitro analysis of elbow instability using 4D-CT imaging

1

Auteurs	D.C. van der Aa, S.P.G. Henckens, D.J. Nijssen, W.J. Eshuis, S.S. Gisbertz, M.I. van Berge Henegouwen
Abstract titel	**Preventing chyle leakage following minimally invasive esophagectomy: efficacy and feasibility of Indocyanine green fluorescence lymphography**
Background	For oncological reasons, the thoracic duct is resected in esophagectomy, as its complex structure and sensitivity make it prone to damage. Often, its smaller branches and collaterals are hard to see, render it prone to injury. Chyle leakage, a tough post-op problem (incidence of 14-21%), results in prolonged thoracic drainage, more hospital admission time, additional reinterventions, dietary restrictions, and reduced long-term survival. Indocyanine green (ICG) fluorescence lymphography offers a solution by visualizing the thoracic duct and collaterals accurately, it could lower chyle leakage occurrence and enable immediate treatment upon detection.
Methods	A prospective observational cohort study will be performed. Patients aged over 18 years with resectable (cT1-4a, N0-3, M0) esophageal carcinoma undergoing a minimally invasive esophagectomy will be included. The primary endpoint of the study is postoperative chyle leakage. Secondary endpoints are overall morbidity and mortality, nature of dietary restrictions, reinterventions, hospital costs, 2 year survival rate and quality of life. Twenty-five milligram of ICG is dissolved in 10 ml of sterile water, obtaining a solution of 2.5 mg ICG per mL. In the McKeown esophagectomy, before the thoracic phase, the surgeon administers a bilateral bolus of 2 mL ultrasound-guided into inguinal lymph nodes. In an Ivor Lewis esophagectomy, 2mL of reconstituted ICG will be injected into the small bowel mesenteric root just under the peritoneum of the mesentery, at the level where the jejunostomy is placed.
Results	We aim to include 50 patients to assess the feasibility of fluorescent lymphography using ICG to prevent chyle leakage after minimally esophagectomy. Inclusion is ongoing. At this time 49 of 50 patients are included. Results will be expected before the congress

Conclusion	It is hypothesized that as a result of this technique the patients will benefit from lower incidence of postoperative chyle leakage, shorter thoracic drainage, reduced hospital admission, reduced dietary restriction, less re-interventions, and improved overall survival.

2

Auteurs	S.P. van Streun, J.P.M. Derikx, L.W.E. van Heurn
Abstract titel	**The development of fecal continence in children surgically treated for Hirschsprung disease.**
Background	Fecal continence is an important goal in the postoperative management of children with Hirschsprung disease (HD). However, previous studies focus on postoperative fecal incontinence in children with HD. Therefore, the aim of this study was to investigated the development of postoperative fecal continence in children with HD.
Methods	Fecal continence was measured in a prospective cohort follow-up program for children with HD. We included children aged between 4-18 years and operatively treated with Pull-through or Duhamel technique. Children with Down Syndrome, stoma or treated after the age of years were excluded. Fecal continence was considered present if no signs of fecal incontinence classified by Rome IV criteria were present. Each child was categorized as incontinent, continent or pseudo-continent (i.e. need for anal irrigations to be continent). Statistical analyses were performed using median and IQR for age and Kaplan-Meier survival analysis status of continence.
Results	Hundred children were included in this study. 77 children were fecal continent, 14 children pseudo-continent and 9 children fecal incontinent. The median age of achieving fecal continence was four years (IQR 2). Kaplan-Meyer survival analysis showed that 48 children achieved fecal continence at the age of four years and 70 children at the age of seven years And 7 children at the age of fourteen years. During this follow-up 11 out of 77 children had a relapse of fecal incontinence. The overall median follow-up time was seven years (IQR 6). The median follow-up time for pseudo-continent was nine years (IQR 4).
Conclusion	The vast majority of children achieve fecal continence at the age of four years after surgical treatment for HD with the possibility of relapse to fecal incontinence.

3

Auteurs	J. Tausendfreund, H. Plasmeijer, D. Penning, E. Tanis, P. Joosse, T. Schepers
Abstract titel	**Determination of pathogens in surgical site infections in ankle fractures and implications for empiric antibiotic treatment**
Background	Surgical site infections (SSI) are the most common complication after surgery for ankle fractures. In this retrospective study we aimed to determine the pathogens cultured in SSI and their antimicrobial susceptibility patterns to give a recommendation for empiric therapy. In addition, empiric antibiotic regimen, culture collection and succession of treatment were identified.
Methods	Patients who underwent surgical treatment for an ankle fracture between 2015 and 2020 were included. Data were collected from electronic health records (EHR). Cases were selected on the occurrence of SSI and treatment strategies were retrieved from EHR to distinguish between superficial and deep SSI. The culture results and antimicrobial susceptibility patterns, empiric antibiotic regimen and culture collection were documented. Data on recurrence of infection, persisting wound defects and implant removal were collected as well.
Results	A total of 81 (9%) out of 931 patients developed an SSI, divided into 39 (48%) superficial SSI and 42 (52%) deep SSI. The swabs showed pathogens in 53 cases. The most common pathogens were Staphylococcus aureus, cultured in 11 (69%) superficial SSI and 23 (62%) deep SSI, and Enterobacter cloacae, cultured in 5 (31%) superficial SSI and 12 (32%) deep SSI. Higher frequencies of gram-negative bacteria and polymicrobial infections were found in deep SSI. Cultures were not collected in 16 (41%) superficial SSI and collected via superficial swabs in 14 (33%) deep SSI. Cultures were collected after the first dose of antibiotics in 15 (23%) SSI in total. Resistance to empiric antibiotics was found in 19 (36%) cases. In 21 (35%) patients superficial SSI treatment failed.
Conclusion	Our study found S. aureus and E. cloacae as most common pathogens in SSI in ankle fractures. It is recommended to aim empiric treatment at both gram-positive and gram-negative microorganisms in case of deep SSI. Furthermore, we recommend maintaining a low threshold for surgical debridement together with deep tissue samples.

4

Auteurs	C.M. Lameijer G.J. Streekstra J.G.G. Dobbe A. Arets P. Boomsma M. Boeijenga
Abstract titel	**In-vitro analysis of elbow instability using 4D-CT imaging**
Background	Simple elbow dislocations are not uncommon injuries in the Emergency Department (ED) as it is the second most frequently dislocated joint. Despite the absence of significant fractures, elbow instability is challenging to treat as it might result in long term impairment including persistent instability. Physical examination and static imaging modalities such as CT or MRI are insufficient to reliably diagnose clinically significant ligamentous or capsular injuries of the elbow. Dynamic CT imaging can lead to early diagnosis and prevent possible impaired function. Literature is scarce on the clinical use and outcomes of 4D-CT for elbow pathology, more specifically on ligamentous injuries. Moreover, there is no literature available on the follow-up of simple elbow dislocations and predictors for posttraumatic instability. This cadaver study will be the first study to investigate in-vitro elbow kinematics and instability patterns by applying stress tests with dynamic braces using 4D-CT. By investigating and describing instability patterns and ligamentous injuries, we can provide new insights on dynamic elbow pathology and possibly improve current treatment algorithms.
Methods	For this in-vitro observational study, we will use three cadaver upper extremities. To obtain baseline data analysing elbow kinematics, one 'healthy' cadaver arms will be exposed to flexion/hyperextension, varus/valgus and posterolateral rotational stress using three different dynamic braces. Subsequently, specific instability patterns will be implemented on the cadaver elbows by releasing the medial collateral ligament, the posterolateral ligament (LuCL) and the complete lateral collateral ligament in laboratory setting. In addition, anterior and posterior capsular release will be tested to explore their role in instability. All the above mentioned instability patterns will be investigated by scanning the cadaver elbow in dynamic braces, simulating different stress tests. Motion analysis following 4D-CT scan images will provide quantitative data to ultimately answer the research questions of this study.

Sessie 3b: Chirurgie Voorbij de Scalpel
14.15 - 15.00 Teekenzaal

Voorzitters:

Ron Balm

Reinier Beks

1. L.M. Behrens - Targeting the innate immune checkpoint CD47-SIRPα on neutrophils to potentiate antibody therapy
2. S.C. Musters - ARTIS-II stepped wedge study of a family involvement program after cancer surgery: study protocol
3. S.J.C. van der Burg - Improvement of textbook outcome of gastric gastrointestinal stromal tumor surgery in the first thirteen years of the Dutch GIST registry
4. F.L.J. Opperman - Fibula allograft in complex three- and four-part proximal humeral fractures in active patients, a matched case-control study
5. L.C. Roosendaal - The additional value of activated clotting time guided heparinization during interventions for peripheral arterial disease.

1

Auteurs	L.M. Behrens, T. van den Berg, M. van Egmond
Abstract titel	**Targeting the innate immune checkpoint CD47-SIRPα on neutrophils to potentiate antibody therapy**
Background	In the last decades, different methods have been developed to harness the immune system for the treatment of cancer. One way to effectively stimulate an anti-tumor response is by the use of tumor-specific monoclonal antibodies (mAbs). These mAbs specifically bind to tumor antigens and are recognized by different immune cells. Neutrophils have been shown to kill antibody-opsonized tumor cells. However, neutrophil effector functions are limited by the inhibitory receptor SIRPα, when it interacts with CD47. Tumor cells often overexpress CD47 and thereby prevent tumor elimination by these neutrophils.
Methods	Neutrophil-mediated tumor cell killing can be divided into different steps: 1. Recognition of tumor cells; 2. Membrane transfer from tumor cells to neutrophils; and 3. Tumor cell death. To investigate the effect of SIRPα signaling in neutrophils on tumor cell killing, CD47 was genetically removed from tumor cells, or the interaction between CD47 and SIRPα was blocked with a specific antibody. Subsequently, neutrophils and antibody-opsonized tumor cells were combined, and the different steps of neutrophil-mediated tumor cell killing were studied.
Results	In the absence of mAbs, neutrophils were unable to identify and bind tumor cells. However, by opsonizing tumors with tumor-specific mAbs, neutrophils could recognize the tumor cells as target cells. Specific binding of neutrophils to these tumor cells allows them to nibble small pieces of tumor membrane through a process called trogocytosis. This eventually results in tumor cell death. Genetic removal of CD47 from tumor cells led to more interactions between neutrophils and tumor cells. These neutrophils then also acquired more tumor membrane fragments via trogocytosis, inducing more tumor cell death. Blocking the interaction between CD47-SIRPα with antibodies showed similar results.
Conclusion	Taken together, these results demonstrate that blocking the interaction between CD47 on tumor cells and the inhibitory receptor SIRPα on neutrophils promotes neutrophil-mediated cytotoxicity towards mAb-opsonized tumor cells.

2

Auteurs	S.C. Musters, D. Bloemberg, S. van Dieren, E.J. Nieveen van Dijkum, A.M. Eskes
Abstract titel	**ARTIS-II stepped wedge study of a family involvement program after cancer surgery: study protocol**
Background	Oncological patients depend on family caregivers after surgery, however, family caregivers often feel unprepared to deliver care after discharge. Therefore, we developed a family involvement program (FIP) which led to a reduction in home care dependence. Applicability of the FIP in other settings is unknown and therefore, we aim to determine strategies to sustainably implement the FIP in oncological surgical care. Also, we aim to evaluate the effect of the FIP on patient and family caregiver outcomes.
Methods	In this hybrid stepped wedge cluster study the FIP will be implemented on surgical wards in six hospitals, starting in December 2023. Each ward will have a control- and transition period followed by an implementation period in which the FIP will be implemented according to our logic model, Normalization Process Theory and Grol & Wensing's model. Adult patients, scheduled for oncological surgery with an expected hospital stay of at least three days will be eligible for inclusion. Patients need to appoint a family caregiver who is able deliver basic care and is able to be present during hospitalization for at least 8 hours per day. The FIP is comprised of involvement of family caregivers in basic care such as early mobilization, encouraging oral intake, breathing exercises, oral care and supporting active orientation. Patients and family caregivers will have access to a mobile app, which contains written and visual information about basic care activities. Based on power calculations we aim to include 612 patients. The primary outcome is the amount of patients needing home care at discharge and secondary outcomes include patient reported experiences, patient health confidence and caregiver burden and caregiver quality of life.
Results	NA
Conclusion	This study will provide hospitals insight how to safely involve family caregivers during hospitalization and how to prepare family caregivers for their role after discharge.

3

Auteurs	S.J.C. van der Burg, R.F. Bleckman, S.N. Hakkesteegt, N. Steeghs, D.J. Grunhagen, B. van Etten, A.K.L. Reyners, J.J. Bonenkamp, H.H. Hartgrink, M.W.J.M. Wouters, W.J. van Houdt, Y.M. Schrage
Abstract titel	**Improvement of textbook outcome of gastric gastrointestinal stromal tumor surgery in the first thirteen years of the Dutch GIST registry**
Background	The Dutch gastrointestinal stromal tumor (GIST) consortium, comprising five GIST expert centers in the Netherlands, established the prospective Dutch GIST Registry (DGR) in 2009 to enhance the quality of GIST care and to facilitate research. This study aims to evaluate the changes in quality of surgical procedures and surgical outcomes after gastric GIST resections.
Methods	All patients who underwent a wedge resection or a partial gastrectomy for localized gastric GISTs recorded in the DGR between January 2009 and January 2022 were included. Metastasized patients were excluded. To evaluate the variation in quality over time, patients were segregated into four equal periods. GIST-specific textbook outcomes (TO) were used as composite measure for surgical outcomes.
Results	A total of 472 patients were included in the study. Patient and tumor characteristics were consistent over time, except for the median age (62 vs. 65 vs. 68 vs. 68, p = 0.002) at time of surgery and the proportion of minimal invasive surgery (MIS) per period (7% vs. 17% vs. 43% vs. 60%, p < 0.001). The proportion of achieved TO increased significantly over time (54% vs. 53% vs. 66% vs. 76%, p < 0.001). Predictors for TO were surgery performed in more recent years (OR 1.68 [CI 95% 1.28-2.23], p <0.001), lower age (OR 0.97 [CI 95% 0.95-0.99], p = 0.004), MIS (OR 0.97 [CI 95% 0.95-0.99], p = 0.004), and lower ASA scores (OR 0.65 [CI 95% 0.44-0.97], p = 0.035). Furthermore, a decrease was seen in the median duration of surgery in minutes (92 vs. 94 vs. 77 vs. 73, p=0.007) and the median length of hospital stay following surgery in days (6 vs. 6 vs. 5 vs. 4, p<0.001).
Conclusion	The quality and perioperative outcomes of gastric GIST surgery in the five Dutch expert centers have improved over time.

4

Auteurs	F.L.J. Opperman, L.S. Blaas, M. Pape, N. Buijs, M. v Sterkenburg, J.Z. Yuan, C.M. Lameijer, R.J. Derksen
Abstract titel	**Fibula allograft in complex three- and four-part proximal humeral fractures in active patients, a matched case-control study**
Background	About 20% of proximal humerus fractures (PHFs) are unstable and/or markedly displaced and therefore require surgery. Locking plate fixation after anatomical reduction has become the current treatment of choice for these fractures in the active population. However, studies have shown complication rates up to 36%, such as loss of reduction and avascular necrosis. To date, data from literature is inconclusive on outcomes following the use of an intramedullary fibula allograft in PHFs, possibly due to the case mix in these studies. It is hypothesized that the use of a fibula allograft is beneficial to prevent secondary displacement of the fracture in cases where the medial hinge is markedly displaced and unstable, resulting in better clinical and patient reported outcomes.
Methods	In this multicenter matched cohort study, patients with an unstable, displaced PHF, including anatomic neck fractures and significantly displaced surgical neck fractures, were included. Patients that were treated with a locking plate augmented with a fibula allograft were matched to patients who had undergone locking plate reconstruction without allograft. The matches were made based on fracture characteristics, age and performance status. Functional outcomes, Patient Reported Outcome Measures, complications, and radiographic results were compared.
Results	Twelve patients with fibula allograft augmented osteosyntheses were included and matched to 12 control patients. The mean age was 58 years in the fibula allograft group compared to 62 in the control group. Minimum follow-up was 12 months. DASH score, CSS, abduction and external rotation were significantly better in the fibula allograft group (17.4 ± 8.6 vs 26.1 ± 19.2, p=0.048; 16.5 ± 11.5 vs 19.8 ± 16.5 p=0.040; mean 127° ± 38° vs mean 92° ± 49° p=-0.045; 50° ± 21° vs mean 26° ± 23°, p=0.004). The OSS score tended to favor the fibula group (p=0.105). The VAS was not significantly different between groups (3.1 ± 1.8 vs 1.6 ± 1.9 p=0.439). Radiographic union was reached in 11 patients of the fibula allograft group compared to 8 in the control group (p=0.317). The complication rate was twice as high in the control group (3 versus 7, p=0.214).

Conclusion	Additional support of the medial hinge in unstable PHFs with a locking plate in combination with a fibula allograft appears to create a more stable construct without compromising the viability of the articular surface of the head. The use of a fibula allograft in selected complex cases could therefore result in better clinical outcomes with lower complication rates.

5

Auteurs	L.C. Roosendaal, M. Radovç, M. Hoebink, A.M. Wiersema, J.D. Blankensteijn, V. Jongkind
Abstract titel	**The additional value of activated clotting time guided heparinization during interventions for peripheral arterial disease.**
Background	Unfractionated heparin is widely used to lower the risk of arterial thromboembolic complications (ATEC) during interventions for peripheral arterial disease (PAD), but it is still unknown which heparin dose is the safest in terms of preventing ATEC and bleeding complications. This study aims to evaluate the incidence of complications during interventions for PAD, and the relation between this incidence and different heparinization protocols.
Methods	A retrospective analysis of a prospective multicenter cohort study was performed. Between June 2015 and September 2022, 355 patients were included who underwent peripheral interventions for PAD. All patients who were included before July 2018 received 5 000 IU of heparin (Group 1). Starting from July 2018, all included patients received an initial dose of 100 IU/kg with potential additional heparin doses based on ACT values (Group 2). Data on ACT values and complications within 30 days post-procedurally were collected.
Results	In total, 24 ATECs and 48 bleeding complications occurred. In Group 1, 8.7% (n=11) of patients suffered from ATEC, compared to 5.7% (n=13) in Group 2. Thirteen percent of patients (n=17) in Group 1 had a bleeding complication, compared to 14% (n=31) in Group 2. ATECs were more often found in patients with peak ACT values of < 200 s, compared to ACT values between 200-250 s (15% (n=6) versus 5.9% (n=9) respectively, p=0.048). Patients with peak ACT values > 250 s had a higher incidence of bleeding complications compared to an ACT between 200-250 s (24% (n=21) versus 9.8% (n=15) respectively, p=0.003). Forty-four percent of patients (n=23) in Group 1 reached a peak ACT of >200 s, compared to 95% (n= 218) of patients in Group 2 (p=0.001).
Conclusion	ATEC was found in 6.8% (n=24) and bleeding complications in 14% (n=48) of patients who underwent a procedure for PAD. There was a significantly higher incidence of ATECs in patients with a peak ACT value 250 s. The findings obtained from this study may serve as a basis for conducting future research on heparinization during procedures for PAD, with a larger sample size.

Sessie 3c: Zing, Vecht, Huil, Bid, Lach, Werk en Bewonder 14.15 - 15.00 Shaffyzaal

Voorzitters:

Anton Engelsman

Esmee Engelmann

1. N. Bontekoning - Network meta-analysis on incisional wound irrigation for the prevention of surgical site infection
2. J.Y. van Oostendorp - Comparing Minimally Invasive Treatments for Pilonidal Disease: LA POPA trial (Laser And Pit-picking Or Pit-picking Alone)
3. B.J.V. Meijs -Machine learning versus logistic regression for the prediction of complications after pancreatoduodenectomy
4. D.E. de Gruijter - Assessing the potential improvement on PROMs of cognitive behavioural therapy in mentally vulnerable patients with a surgically treated proximal humerus fracture; A study protocol for a randomized controlled trial. ELEVATE study; does lifting spirits help lift the arm?
5. N.J.S. Thiermann - The Pearl-AAA Biobank to better understand AAA progression and risk for rupture

1

Auteurs	N. Bontekoning*,H. Groenen*, H. Jalalzadeh, S.W. de Jonge, R.G. Orsini, A.M. Eskes, N. Wolfhagen, M.A. Boermeester
Abstract titel	**Network meta-analysis on incisional wound irrigation for the prevention of surgical site infection**
Background	Surgical site infections (SSI) are common post-operative complications and associated with significant morbidity, mortality, and costs. Prophylactic intra-operative incisional wound irrigation (IOWI) is used to reduce the risk of SSI. There is great variation in irrigation solutions and use. Therefore, we aimed to compare the efficacy of different types of incisional IOWI for the prevention of SSI.
Methods	PUBMED, Embase, CENTRAL and CINAHL databases were searched up to June 12, 2023. We included randomised controlled trials (RCTs) comparing incisional IOWI to no IOWI or comparing incisional IOWI using different types of solutions, with SSI as reported outcome. Studies investigating intra-cavity lavage were excluded. A frequentist network meta-analysis was conducted and relative risks (RR) with corresponding 95% confidence intervals (CI) were reported.
Results	We identified 1587 articles, of which 41 RCTs were included in the systematic review, with 17,188 patients reporting 1328 SSI; an overall incidence of 7.7%. Compared to no irrigation, antibiotic solutions (RR 0.46, 95% CI 0.29-0.73; high level of certainty) and antiseptic solutions (RR 0.60, 95% CI 0.44-0.81; moderate level of certainty) showed benefit in reducing SSI. Saline solution showed no statistically significant difference compared to no irrigation (RR 0.83, 95% CI 0.63-1.09).
Conclusion	This network meta-analysis shows that prophylactic intra-operative incisional wound irrigation with antibiotic or antiseptic solutions are effective in reducing SSI. Although antibiotic solutions are effective, use of antiseptic solutions is preferred considering rising antibiotic resistance.

2

Auteurs	J.Y. van Oostendorp, R. Schouten, R. Veldkamp, I.J.M. Han-Geurts, R.M. Smeenk
Abstract titel	**Comparing Minimally Invasive Treatments for Pilonidal Disease: LA POPA trial (Laser And Pit-picking Or Pit-picking Alone)**
Background	Pilonidal sinus disease (PSD) is a burdening disease with a prevalence of 26/100.000 individuals, mostly affecting young men. Conventional treatment consists of a wide array of excisional surgery techniques, often requiring multiple operations, which lead to high morbidity and medical costs. Pit-picking is a simple minimally invasive approach that can be performed in an outpatient clinic setting with local anesthesia, potentially lower costs and higher overall patient satisfaction. However, higher recurrence rates have been reported. Adjuvant laser therapy might provide a valuable option to decrease recurrence rates and improve wound healing time, but the benefit of the laser has to be established yet. The main objective of this study is to establish the efficacy of 'pit picking with laser therapy' versus 'pit picking alone' on both short and long-term outcomes.
Methods	The study concerns a multicenter, single-blinded, randomized, controlled, superiority trial. It will investigate the additional value of laser therapy regarding the success rate of treatment. The design involves allocation of all appropriate consecutive patients, ages 12 years or older, with primary pilonidal sinus disease to pit picking alone or combined with laser therapy.
Results	The primary study outcome measures the overall success rate which is defined as: closure of all pits, and the absence of symptoms, persisting sinuses or recurrence of pilonidal disease within 12 months. Secondary outcomes include wound closure time, patient experience, pain, complications, quality of life, costs and the need for revision surgery. Data collection occurs at various intervals up to 5 years post-treatment.
Conclusion	The LA POPA trial, as the first major trial of its kind and following the 2022 Dutch guidelines, aims to shed light on the added value of laser therapy, not just in terms of treatment efficacy but also in cost-effectiveness and patient quality of life.

3

Auteurs	B.J.V. Meijs, E.W. Ingwersen, W.T. Stam, J. Roor , M.G. Besselink , B. Groot Koerkamp , I.H.J.T. de Hingh , H.C. van Santvoort , M.W.J. Stommel , F. Daams ; Dutch Pancreatic Cancer Group
Abstract titel	**Machine learning versus logistic regression for the prediction of complications after pancreatoduodenectomy**
Background	Machine learning is increasingly advocated to develop prediction models for postoperative complications. It is, however, unclear if machine learning is superior to logistic regression when using structured clinical data. Postoperative pancreatic fistula and delayed gastric emptying are the two most common complications with the biggest impact on patient condition and length of hospital stay after pancreatoduodenectomy. This study aimed to compare the performance of machine learning and logistic regression in predicting pancreatic fistula and delayed gastric emptying after pancreatoduodenectomy.
Methods	This retrospective observational study used nationwide data from 16 centers in the Dutch Pancreatic Cancer Audit between January 2014 and January 2021. The area under the curve of a machine learning and logistic regression model for clinically relevant postoperative pancreatic fistula and delayed gastric emptying were compared.
Results	Overall, 799 (16.3%) patients developed a postoperative pancreatic fistula, and 943 developed (19.2%) delayed gastric emptying. For postoperative pancreatic fistula, the area under the curve of the machine learning model was 0.74, and the area under the curve of the logistic regression model was 0.73. For delayed gastric emptying, the area under the curve of the machine learning model and logistic regression was 0.59.
Conclusion	Machine learning did not outperform logistic regression modeling in predicting postoperative complications after pancreatoduodenectomy.

4

Auteurs	D.E. de Gruijter, L.S. Blaas, R.E. Boeschoten, P. van Oppen, R.J. Derksen
Abstract titel	**Assessing the potential improvement on PROMs of cognitive behavioural therapy in mentally vulnerable patients with a surgically treated proximal humerus fracture; A study protocol for a randomized controlled trial. ELEVATE study; does lifting spirits help lift the arm?**
Background	Shoulder injuries are among the most common injuries presented in the Emergency Department. (1,2) Although physical factors play an important role in the treatment and outcomes after a proximal humerus fracture, psychological factors need to be taking into account as well. Few studies have been done to the influence of psychosocial factors on the outcomes after shoulder surgery and show that it is negatively correlated. (3-5, 6) Personality traits influence outcomes of health and disease. Neuroticism is the trait shown to be most important concerning worse outcomes. (7,8) Cognitive behavioural therapy (CGT) is provided to people having neuroticism to help cope with unhelpful beliefs and behaviours. CGT has also shown to positively affect satisfactions in patients undergoing TKA. (9,10) Although studies have been done to objectify the correlation between psychological factors and patient related outcomes measurements (PROMs) after surgery, there has not yet been a trial where an intervention has taken place to better the PROMs when patients have neurotic tendencies.
Methods	This study is a, multi-centre, non-blinded, randomized controlled trial. The aim of this study is to assess the benefit of concomitant psychological guidance in patients with proximal humerus fractures and neuroticism on the PROMs. All patients (18+) undergoing surgical repair of a proximal humerus fracture and having neuroticism will be randomized to receive standard care or standard care and psychological guidance, consisting of CGT and relaxational exercises. Baseline data collection will be conducted at the time of admission. All patients will return to the shoulder expertise centre at 3, 6 and 12 months, where questionnaires will be filled out and outcome indicators will be measured.
Results	-
Conclusion	If psychological guidance is effective in improving the outcomes, our findings will promote a new standard of care that incorporates psychological guidance as part of the recovery after proximal humerus fracture.

5

Auteurs	B.L. Tran; N.J.S. Thiermann, V. Jongkind, R. Balm, J.H. Nederhoed, A.J.W. Hoksbergen, M.J.W. Koelemaij, J.D. Blankensteijn; K.K. Yeung
Abstract titel	**The Pearl-AAA Biobank to better understand AAA progression and risk for rupture**
Background	An abdominal aortic aneurysm (AAA) is a permanent dilatation of the abdominal aorta that poses a life-threatening condition if rupture occurs. The current approach in assessing AAA patients based on comorbidity, clinical risk factors, and aortic diameter is insufficient for understanding disease progression. Therefore, the Pearl-AAA/PARIS study was initiated to observe the natural course of AAA development.
Methods	The Pearl-AAA biobank is an ongoing multicenter prospective observational biobank in Amsterdam, the Netherlands, containing biomaterials (blood, urine, and aneurysm tissue), and clinical and imaging data. Patients with an abdominal aortic diameter of >30 mm or with prior treatment for AAA were eligible for inclusion. Recruitment took place at the outpatient clinic and during hospital admissions. Data were collected during clinical follow-up appointments and surgery. Additionally, a yearly questionnaire and yearly blood and urine samples were collected. In the case of open surgery, aneurysm tissue was collected and stored in the biobank.
Results	From October 2017 until September 2023, 795 patients with AAA were recruited in Amsterdam UMC. At inclusion, 392 patients had an unrepaired AAA (N=392, 49%), 255 underwent prior AAA repair (N=255, 32%), and 48 were included during hospital admission prior to AAA surgery (N=48, 6%). Blood samples were collected in 696 patients (N=696, 88%). Aneurysm tissue was collected in 53 participants during open repair (N=53, 7%). None of the asymptomatic patients included have experienced AAA rupture. Data have been collected over six years, and ultimately, subgroups will be identified from the total group of patients based on the differences in the natural development of their AAA. Using biomaterials, clinical and imaging data we aim to gain new insights in risk factors for AAA progression and rupture.
Conclusion	The Pearl-AAA biobank continues to grow and facilitate further AAA research to better predict and perhaps even prevents AAA progression and rupture.

Sessie 3d: Architecturale Hoogstandjes en Chirurgische Laagstandjes: Een Kijk op Complicaties 14.15 - 15.00 Huslyzaal

Voorzitters:

Iris van der Ploeg

Gaelle Kramer

1. K. Wienholts - Economic burden of pelvic sepsis after anastomotic leakage following rectal cancer surgery: a retrospective cost-of-illness analysis
2. Y.A. Civil - Pre-operative single dose partial breast irradiation: five-year results of the ABLATIVE trial
3. A.M. Ahmadi - Geographical differences in wound complication rates following the sinus tarsi approach in displaced intra-articular calcaneal fractures: A systematic review of the literature
4. C.A.N. Sewnath - Neutrophil-mediated tumor cell killing induces uptake of antigens and dendritic cell maturation

1

Auteurs	K. Wienholts, D.J. Nijssen, S. Sharabiany, P. J. Tanis, M. J. Postma, W. Lameris, R. Hompes
Abstract titel	**Economic burden of pelvic sepsis after anastomotic leakage following rectal cancer surgery: a retrospective cost-of-illness analysis**
Background	Anastomotic leakage (AL) following rectal surgery remains a challenging complication. Approximately half of these leakages persist past a year and can result in pelvic sepsis. Therapy is individualized, but can consist of vacuum drainage with anastomotic reconstruction or major salvage surgery. This requires additional admissions, interventions and operations, imposing a financial strain on the healthcare system. This study analyzes the financial burden for the extensive treatment of pelvic sepsis in a tertiary hospital.
Methods	Between January 2010 and January 2020, all patients referred for pelvic sepsis treatment after low anterior resection for rectal cancer were prospectively registered and retrospectively reviewed up to 5 years of follow-up (mean). Following guidelines for cost analyses from the Dutch National Healthcare Institute, this database was analyzed as a cost-of-illness study. Medical costs as imposed to the hospital were included, inflation-adjusted to 2022, and measured in euros, starting at the first appointment in our hospital.
Results	In total, 126 patients were included in this analysis of which mean total costs were €29.830 per patient, consisting of €20.276 for primary salvage surgery along with admission and additionally €9.554 for re-interventions and re-admissions. In 61 (48%) patients, primary salvage surgery consisted of an intersphincteric resection of the anastomosis, while restorative salvage surgery was performed in the remaining patients. Patients were hospitalized in the general ward after primary salvage surgery for a mean of 8.9 days, with 0.7 days (mean) at the intensive care unit. Most performed re-interventions consisted of endoscopic vacuum sponge changes (n = 166), stoma closures (n = 59), and recurrent abscess drainages (n = 51).

Conclusion	Pelvic sepsis treatment imposes a substantial economic burden on healthcare systems, costing almost €30.000 per patient for tertiary hospital care. This can support quantifying the potential economic benefits of innovations that reduce the incidence of pelvic sepsis after rectal surgery.

2

Auteurs	Y.A. Civil, J.E. Vasmel, R.K. Charaghvandi, A.C. Houweling, P.J. van Diest, A.J. Witkamp, A. Doeksen, T. van Dalen, H.M. Verkooijen, F. van der Leij, S. van der Velde, H.J.G.D. van den Bongard
Abstract titel	**Pre-operative single dose partial breast irradiation: five-year results of the ABLATIVE trial**
Background	In the ABLATIVE trial (NCT02316561), 15/36 patients achieved a pathologic complete response 6-8 months after preoperative single-dose partial beast irradiation (PBI). We now present the long-term outcomes of the ABLATIVE trial.
Methods	Between 2015 and 2018, 36 patients with low-risk breast cancer were treated with preoperative single-dose PBI followed by BCS after 6 (n=15) or 8 (n=21) months. Toxicity, quality of life and cosmetic outcome were scored at baseline and yearly visits until 5 years after preoperative PBI.
Results	After a median follow-up of 5.1 years (3.8â€"6.3 years), grade 1 breast fibrosis and breast discomfort/pain were present in 83% and 44% of the patients, respectively. Grade 2 breast fibrosis (3%) and fatigue (3%) at 3 years completely resolved at 5 years. Two (6%) patients developed ipsilateral breast events and two (6%) distant metastases. The five-year overall survival rate was 94%. The proportion of patients (very) satisfied with the cosmetic results was 89% and 76% at baseline and 5 years, respectively (p=0.2). The 4-year quality of life scores remained constant (90 (baseline) vs. 94 (4 years); p=0.9).
Conclusion	Preoperative single-dose PBI and BCS is an oncological safe treatment with mild late toxicity, and no decline in cosmetic results and quality of life during 5 years of follow-up. In the ongoing ABLATIVE-2 trial (NCT05350722), BCS is performed at 12 months after preoperative PBI aiming to achieve a higher pathologic response rate and response monitoring is performed using MRI and biomarkers.

3

Auteurs	R. Eelsing, A.M. Ahmadi, J.A. Halm, T. Schepers
Abstract titel	**Geographical differences in wound complication rates following the sinus tarsi approach in displaced intra-articular calcaneal fractures â€“ A systematic review of the literature**
Background	The sinus tarsi approach (STA) has gained popularity for the treatment of displaced intra-articular calcaneal fractures (DIACFs). No large studies comparing wound complications world-wide after STA surgery are available. The aim of this systematic review was to compare postoperative wound complication (POWC) and postoperative wound infection (POWI) rates following STA surgery between continents, countries, and their differences in climate.
Methods	A literature search was performed using the databases of PubMed, Embase and the Cochrane Library. Studies published before January 1st 2000, including <10 patients and written in a language other than English were excluded
Results	In total, 88 studies containing 4414 surgeries via STA from 20 different countries, were included. The mean POWC was 5.9% and mean POWI was 4.5%. The highest mean POWC rate was in North America (8.5%) and the lowest in Asia (3.4%). No significant differences were wound in the POWC and POWI rates between countries (p=0.179 and p=0.571, respectively), but significant differences were found between the POWC and POWI rates between continents (p=0.046 and p=0.014, respectively). The number of surgeries per year and climate differences, as represented by mean local temperature, were not correlated with both the POWC/POWI rates and functional outcome score
Conclusion	Significant differences between the POWC and POWI rates were found between continents but not between individual countries. With a mean POWC of 5.9% and mean POWI rate of 4.5%, STA has an intrinsic low risk for complications given the minimally invasive nature of the approach and is inevitably becoming the gold standard for calcaneal surgery.

4

Auteurs	C.A.N. Sewnath, L. Geerlings, N.L. van der Meijs, S.J. van Vliet, M. van Egmond
Abstract titel	**Neutrophil-mediated tumor cell killing induces uptake of antigens and dendritic cell maturation**
Background	Antibody therapy is a promising strategy for cancer treatment. Unfortunately, many tumors have an immunosuppressive microenvironment, precluding the induction of long-term adaptive immune responses. This immunosuppressive tumor environment can be infiltrated with various immune cells that can secrete anti-inflammatory mediators thereby preventing tumor cell killing by other immune cells.
Methods	Recently, we developed a bi-specific antibody called TrisomAb, which consists of three elements. It can target tumor-associated antigens (binding to tumor cells) and FcÎ±RI (binding of neutrophils) with a functional IgG Fc tail (binding of NK cells and macrophages). Our goal is to investigate if adaptive immune responses can be induced using TrisomAb. Therefore, co-cultures with neutrophils, dendritic cells, tumor cells and TrisomAb were performed. Uptake and activation measurement was done by flow cytometry and migration of fluorescent cells by a multi-mode microplate reader. Furthermore, the cytokine profile of co-cultures were assessed by ELISA.
Results	Our data showed that TrisomAb recruited and activated neutrophils, which induced tumor cell killing. Co-culture of tumor cells with dendritic cells, neutrophils and TrisomAb resulted in release of tumor antigens by neutrophils and enhanced antigen uptake by dendritic cells. Uptake of tumor antigens by these dendritic cells led to maturation as well as secretion of pro-inflammatory cytokines that are involved in induction of T cell responses. It was also observed that these activated moDCs migrated towards lymphnode-associated CCL19/CCL21.
Conclusion	Taken together, neutrophil-mediated killing via TrisomAb leads to tumor cell antigen uptake by dendritic cells. Moreover, tumor antigen uptake by dendritic cells results in activation, migration and subsequent secretion of factors that could lead to induction of adaptive immune responses after treatment with TrisomAb.

Best Abstract Sessie 16.00 - 16.45 Concertzaal

Voorzitters:

Rutger-Jan Swijnenburg

Tessa le Large

1. M.J.G. Bond - One-stage versus two-stage surgery for initially unresectable colorectal cancer liver metastases: a propensity score-matched analysis of the Dutch CAIRO5 trial
2. A.K.E. van Hemert - Tailoring axillary treatment in lymph node positive breast cancer patients is associated with excellent oncologic outcome: 5-year recurrence free and overall survival in >400 patients undergoing the MARI protocol
3. H.E. van Bremen - Characteristics and outcomes of non-operatively managed hip fracture patients using the Dutch Hip Fracture Audit (DHFA)
4. K. Rombouts - NUAK1 kinase activity regulates contraction in smooth muscle cells derived from abdominal aortic aneurysm patients

1

Auteurs	M.J.G. Bond, K. Bolhuis, K.P. de Jong, G. Kazemier, J.M. Klaase, M.S.L. Liem, A.M. Rijken, C. Verhoef, J.H.W. de Wilt, A.M. May, C.J.A. Punt, R.J. Swijnenburg
Abstract titel	**One-stage versus two-stage surgery for initially unresectable colorectal cancer liver metastases: a propensity score-matched analysis of the Dutch CAIRO5 trial**
Background	Considerable variability exists among liver surgeons in assessing resectability and local treatment planning of initially unresectable colorectal cancer liver-only metastases (CRLM). We analysed outcomes of one-stage versus two-stage surgery in patients with initially unresectable CRLM from the phase 3 CAIRO5 study.
Methods	An expert panel of surgeons and radiologists assessed resectability at baseline and 2-monthly thereafter. If surgeons judged CRLM as resectable, detailed local treatment plans were provided. Propensity score matching was used to compare two-stage with one-stage surgery, and two-stage surgery with no local treatment. Matching was based on age, sex, number, distribution, and size of CRLM, number of involved liver segments, RAS/BRAFV600E mutation status, primary tumour location, synchronous/metachronous CRLM, performance status, CEA, LDH, and best response.
Results	One-stage versus two-stage surgery was compared in a matched sample of 160 patients. Median age was 61 versus 62, median number of CRLM 10 versus 9, and 94% versus 95% had bilobar CRLM. Median overall survival (OS) was 43.6 versus 31.7 months (HR 0.54, 95%CI 0.36-0.81, p=0.002) with one-stage versus two-stage surgery. Clavien Dindo grade ≥3 complications occurred in 16 (20%) versus 18 (22%) patients (p=0.85), portal vein embolisation was performed in 8 (10%) versus 60 (75%) patients (p<0.001), and local treatment was complete (R0/R1 resection or ablation of all CRLM) in 74 (92%) versus 56 (70%) patients (p<0.001), in whom 45 (61%) versus 24 (43%) ablation was performed, in one-stage versus two-stage surgery, respectively. In a matched sample of 146 patients, median OS was 33.4 versus 21.5 months (HR 0.48, 95%CI 0.33-0.70, p<0.001) with two-stage surgery versus no local treatment.
Conclusion	When technically feasible, one-stage surgery +/- ablation seems the preferred approach for patients with initially unresectable CRLM. If one-stage surgery is not feasible, two-stage hepatectomy leads to longer survival then no local treatment.

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Auteurs	A.K.E van Hemert, A.A van Loevezijn, M.S.P.D. Baas, M.P.M Stokkel, E Groen, C.E Loo, G.S Sonke, N.S Russell, F.H van Duijnhoven, M.J.T.F.D Vrancken Peeters
Abstract titel	**Tailoring axillary treatment in lymph node positive breast cancer patients is associated with excellent oncologic outcome: 5-year recurrence free and overall survival in >400 patients undergoing the MARI protocol**
Background	Axillary lymph node staging techniques after primary systemic therapy (PST) show low false negative rates. This led to an increased use of tailored axillary treatment, including omission of axillary lymph node dissection (ALND). However, robust data on oncologic outcomes following tailored axillary treatment after PST are lacking. Here, we present the five-year results of node positive (cN+) breast cancer patients treated according to the MARI (Marking Axillary lymph nodes with Radioactive Iodine seeds)-protocol.
Methods	We prospectively enrolled cN+ breast cancer patients who underwent axillary treatment according to the MARI-protocol between 2014 and 2019. Clinical nodal stage was assessed by FDG-PET/CT. Patients with cN<4 and pathologic complete response of the MARI node (MARI-pCR) did not receive further axillary treatment. Those with cN≥4 and MARI-non-pCR received ALND plus radiotherapy (RT). All other patients received RT alone. Primary endpoint was axillary recurrence-free survival (aRFS). Secondary endpoints were overall recurrence-free survival (RFS) and overall survival (OS).
Results	411 patients were included: 201 (49%) with HR+/HER2- breast cancer; 69 (17%) HR+/HER2+; 55 (13%) HR-/HER2+ and 86 (21%) patients with triple negative (TN) disease. PET-CT identified 262 of 411 (55%) patients as having cN<4 of whom 92 (35%) with MARI-pCR. 149 of 411 patients had cN≥4 of whom 71 (48%) had a MARI-pCR. According to protocol, 22% (n=92) patients received no further axillary treatment, 59% (n=241) patients received RT and 19 % (n=78) patients underwent ALND plus RT. Median follow-up was 58 months (IQR 45 – 76). Five-year aRFS was 91% (N = 14, 95% CI 88 – 94). Overall RFS (75%; 95% CI 65 – 86) and OS (87%; 95% CI 80 – 96) was the worst in patients who underwent ALND plus RT.
Conclusion	Tailored axillary treatment in cN+ breast cancer patients by using the MARI protocol after PST is associated with an excellent five-year outcome.

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Auteurs	H.E. van Bremen, L.J. Seppala, J. H. Hegeman, N. van der Velde, H.C. Willems; Dutch Hip Fracture Audit Group*
Abstract titel	**Characteristics and outcomes of non-operatively managed hip fracture patients using the Dutch Hip Fracture Audit (DHFA).**
Background	Considering the growing number of hip fracture patients, prioritizing patient-centred hip fracture care is important. Given the increasing awareness of nonoperative management as a treatment option in frail patients, the need for understanding the characteristics of the non-operatively treated population is growing. This study aims to compare and identify patient- and fracture characteristics in hip fracture patients treated non-operatively and patients treated operatively.
Methods	This retrospective population-based cohort study used data from a nationwide hip fracture database. All adult patients sustaining a hip fracture between 2016-2022 in the Netherlands were included. Patients with pathological or periprosthetic hip fractures were excluded. Data were analyzed in 2023. Patients were categorized according to the type of management (operative vs nonoperative). Primary outcomes were patient- and fracture characteristics associated with nonoperative management. Univariate and multivariable analyses were used to identify clinical characteristics independently associated with nonoperative management. All-cause mortality was measured at seven days, 30 days, three months and one year.
Results	A total of 94.930 hip fracture patients were included, with an incidence of nonoperative management of 3.2%. Patients receiving nonoperative management were older (86 years [interquartile range 79-91] vs 81 years [interquartile range 72-87] P <.001), more frequently institutionalized (42.4% vs 17.6%), had poorer mobility and were more dependent in activities of daily living. Various clinical characteristics, including dementia (odds ratio 1.31 [95% confidence interval, 1.18-1.45] P < .001), no functional mobility (odds ratio 4.39 [95% confidence interval 3.14-3.68] P <.001), and KATZ-6-ADL (OR 1.17 [95% CI 1.14-1.20] P < .001) were independently associated with nonoperative management. 7-day mortality was 37.6%, and 30-day mortality was 57.1%.

Conclusion	The first step in understanding which patients potentially benefit from nonoperative management is evaluating the current standard of our care. This study gives a clear understanding of the current hip fracture population treated non-operatively. These patients are older, have higher percentage of dementia, more dependent and show higher short-term mortality rates.

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Auteurs	K. Rombouts, T. van Merrienboer, N. Bogunovic, J. van der Velden, K. Yeung
Abstract titel	**NUAK1 kinase activity regulates contraction in smooth muscle cells derived from abdominal aortic aneurysm patients**
Background	Abdominal aortic aneurysms (AAA) are defined as a weakening and dilatation of the aortic wall. The aim of this study is to investigate the underlying mechanism of altered in vitro contractility of vascular smooth muscle cells (SMC) derived from AAA patients, compared to control SMC (C-SMC).
Methods	Contractility of AAA-SMC (n=39) and C-SMC (n=18) was measured upon ionomycin stimulation using Electric Cell-substrate Impedance Sensor. A (phospho)proteomics analysis was performed in AAA-SMC (n=24) and control SMC (n=8). Integrative Inferred Kinase Activity (INKA) analysis was used to calculate kinase activity scores, based on phosphorylation data of either kinases or their substrates.
Results	AAA-SMC were divided into subgroups based on contraction (AAA-Low contracting: mean: 70,63%, SD: 5,51% (n=8); AAA-Normal contracting: mean: 83.69%, SD: 3.35% (n=22); AAA-High contracting: mean: 91.72%, SD: 1.22% (n=9)). Protein expression levels of Thrombospondin-1 (r=.21, p= 0.0091), PDZ and LIM domain protein 4 (r=.46, p<0.0001) and ATPase plasma membrane Ca2+ transporting 1 (r=.17, p=0.018) were correlated to SMC contraction, but siRNA mediated knock down of these proteins did not affect SMC contraction. INKA analysis identified NUAK1 kinase activity as potential regulator of SMC contraction, by phosphorylation on 3 amino acids on myosin phosphatase (MYPT1). This was confirmed by a correlation between NUAK1 activity and phosphorylation levels of 2 MYPT1 phosphosites (Ser445 (r=.24, p=0.0056) and Ser910 (r=.52, p<0.0001)). Moreover, NUAK1 protein and RNA expression levels were correlated to SMC contraction and NUAK1 knock down decreased contraction in AAA-SMC, but not in C-SMC.
Conclusion	Impaired contraction of AAA-SMC is seen compared to C-SMC, and this is regulated by NUAK1 kinase activity and expression. Currently we are performing further experiments to explore how NUAK1 exactly regulates contraction in AAA-SMC. Finding proteins involved in AAA-SMC dysfunction can contribute to novel non-invasive treatment options for prevention and/or stabilization of AAA.