Structured Reporting in Retroperitoneal Sarcoma Imaging

CTOS 2022 Semiannual Meeting

Markus Albertsmeier | Wolfgang Kunz | LMU University Hospital | Munich

Rationale

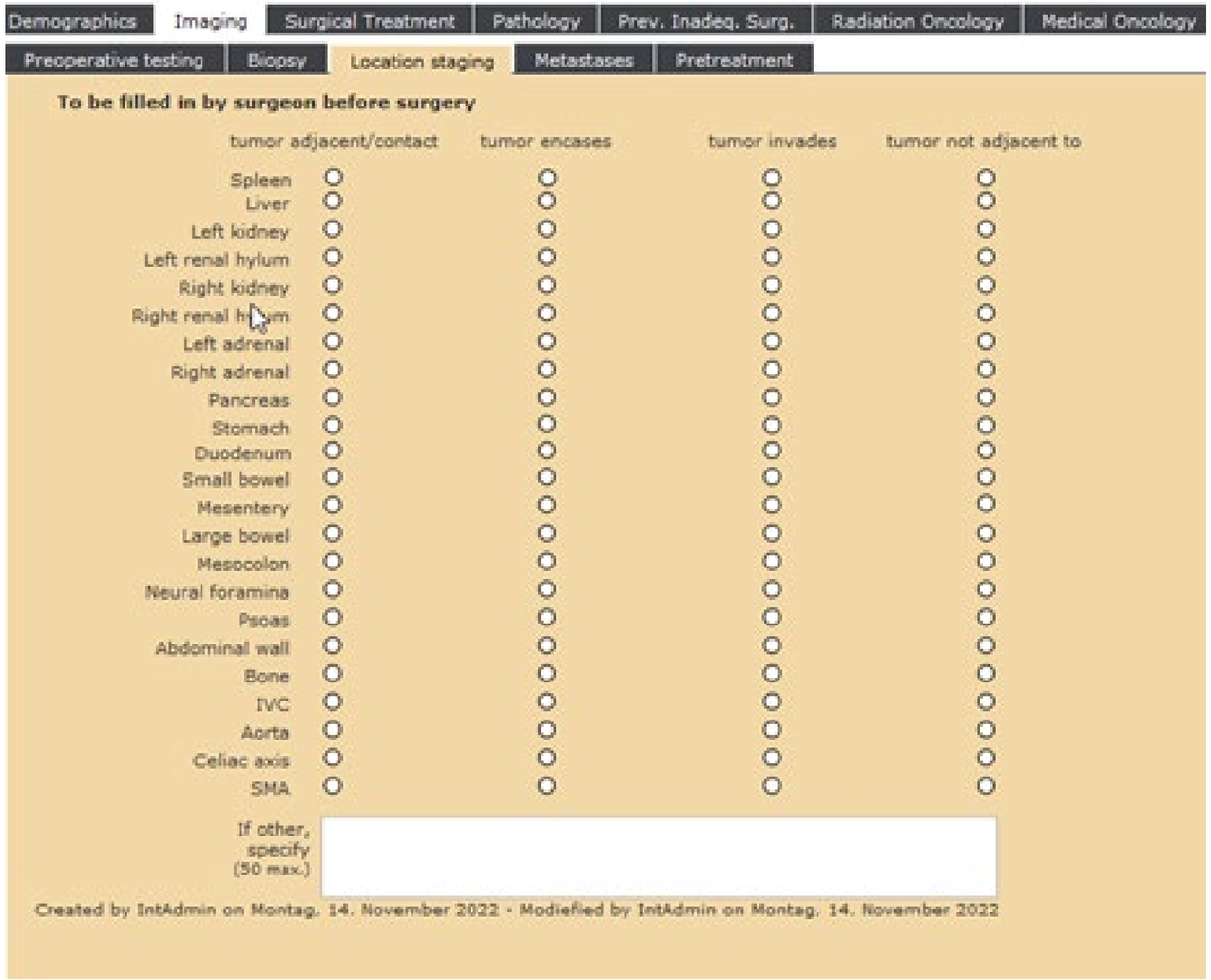
- Traditional reports: free text narratives in variable format - omission of important data
- Complexity of radiology reports increases with medical progress

Schwartz LH, et al. (2011); Radiology 260 (1): 174-181

- Standardization in acquisition and reporting is key for future applications of radiomics or AI

Lambin P, et al. (2017); Nature Reviews Clinical Oncology 14 (12): 749-762

Gillies RJ, et al. (2016); Radiology 278 (2): 563-577



Potential Applications within TARPSWG

1. **Pilot Study:**
   Create, refine and evaluate the **template** in a TARPSWG or RESAR pilot study:
   satisfaction/content/clarity/accuracy

2. **A radiomics project within the group:**
   image-based grading and risk stratification of RPS

3. **Connection to RESAR:**
   simplified data collection

4. **Establishing a basis for future trials:**
   Association with **centralized imaging in RESAR** may save/reduce the cost for reference radiology

Pilot Study

Update

1) Development of structured reporting template
- Items to document phenotypic characteristics (contact to visceral organs, vessels, bones etc.)
- Technical capabilities to assess radiomics features
- Collaboration with Mint Medical to develop a ready-to-use template*

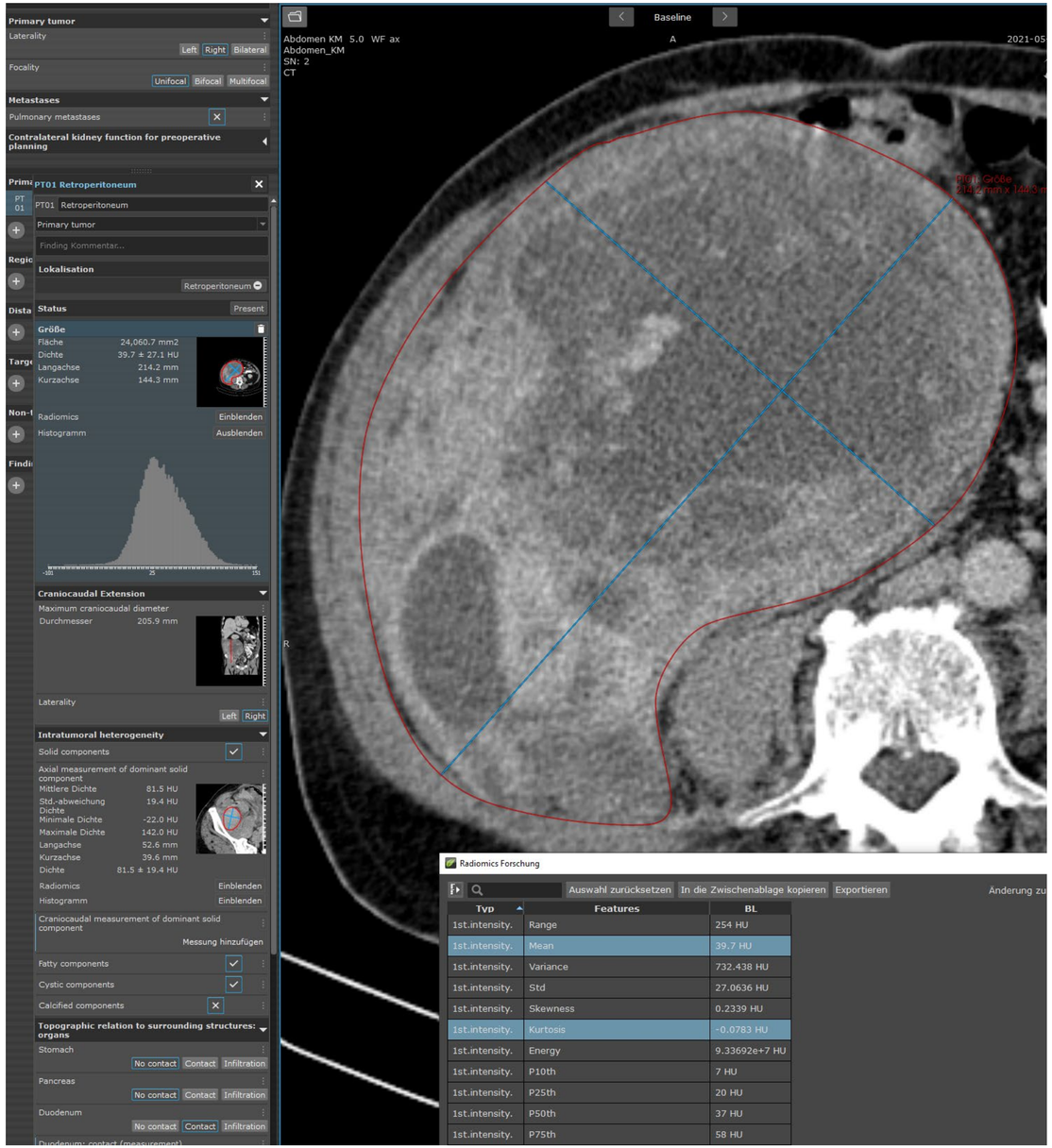
2) Deployment of template to local imaging/PACS/IT systems
- Survey 04-06/2022: 40 respondants from 21 institutions
- N=3 sites activated (LMU Munich, Royal Marsden Hospital, University of Mannheim)
- Further sites will require scientific funding to support IT implementation

3) Analysis of pilot patient population
- N=10 (LMU Munich; n=5 Royal Marsden, n=5 Mannheim will follow)
- Technical feasibility in 100% of cases

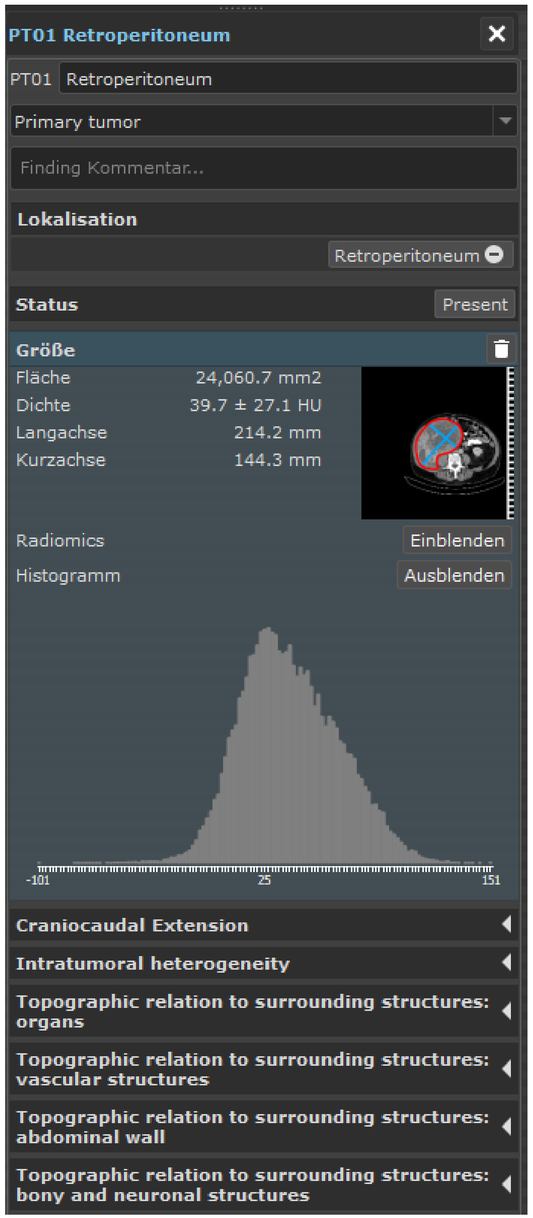
Template Development → Dissemination → Analysis

*Acknowledgement
Steffen Rupp, Mint Medical GmbH
Edem Atsiatorme, Mint Medical GmbH

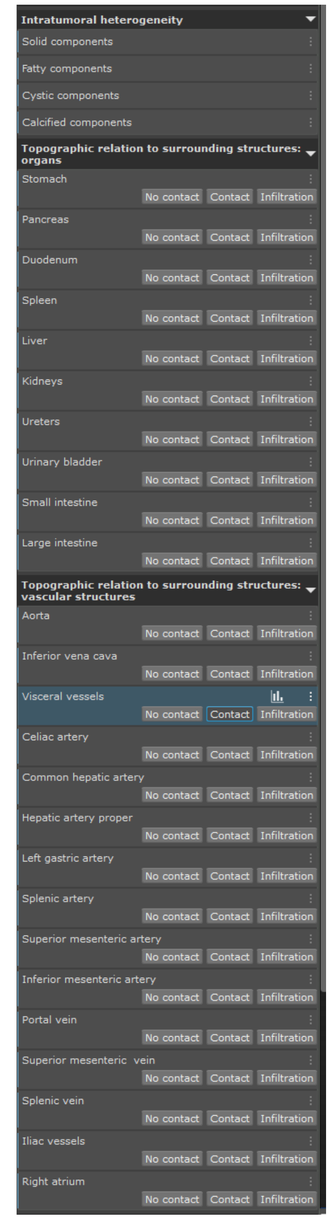
User Interface



Radiomics



Documentation



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Survey

Institutions that have expressed their interest:

- ARNAS Garibaldi, Catania, Italy
- National and Kapodistrian University of Athens, Aretaieio University Hospital, Athens Greece
- Brigham and Women's Hospital, Dana-Farber Cancer Institute, Boston, MA, USA
- CMC Vellore, India
- Fondazione IRCCS Istituto Nazionale Tumori, Milan, Italy
- University Hospital Münster, Germany
- Ghent University Hospital, Belgium
- Institut Curie Paris, France
- Institute of Oncology Ljubljana, Slovenia
- IOV Veneto institute of Padova, Italy
- LMU University Hospital, Munich, Germany
- Maria Sklodowska-Curie National Research Institute of Oncology, Warsaw, Poland
- Masaryk Memorial Cancer Center, Brno, Czech Rep.
- Peter MacCallum Cancer Centre, Melbourne, Australia
- Portuguese Institute of Oncology of Porto, Portugal
- Rigshospitalet, Copenhagen, Denmark
- Royal Prince Alfred Hospital, Sydney Australia
- Tata Memorial Hospital, Mumbai, India
- The Royal Marsden, London, UK
- University Hospital Bern, Switzerland
- University of Kansas

Come Join us:
malberts@med.lmu.de

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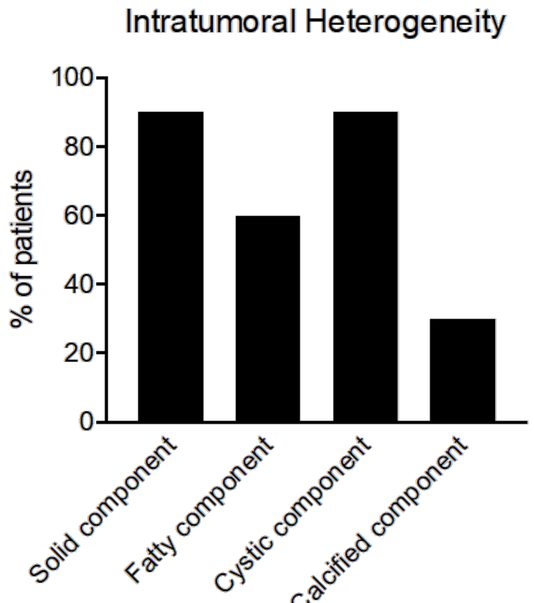
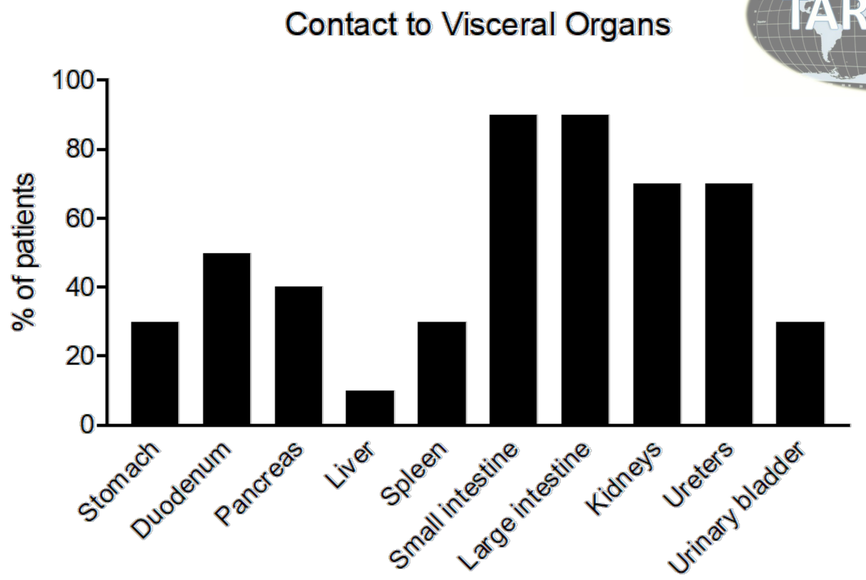
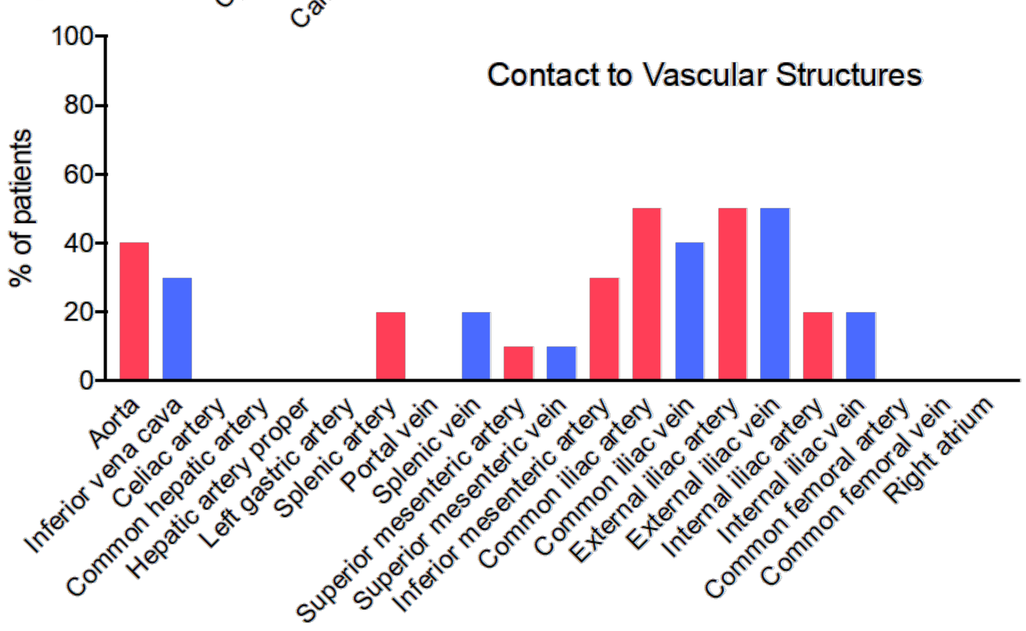
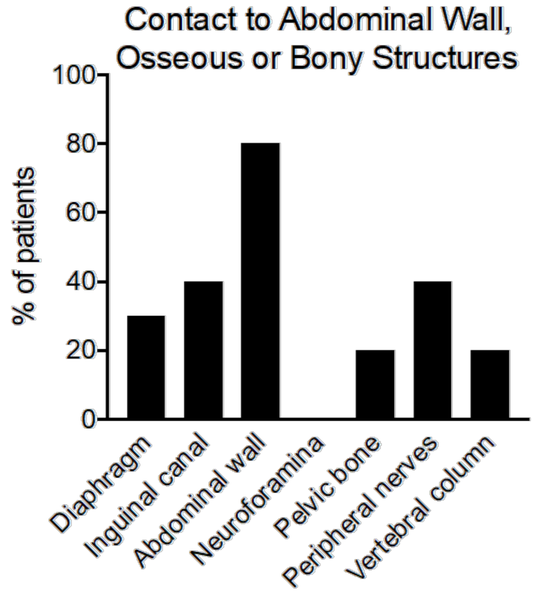
Analysis

Structured **Phenotypic** Characterization of Retroperitoneal Sarcoma Patients



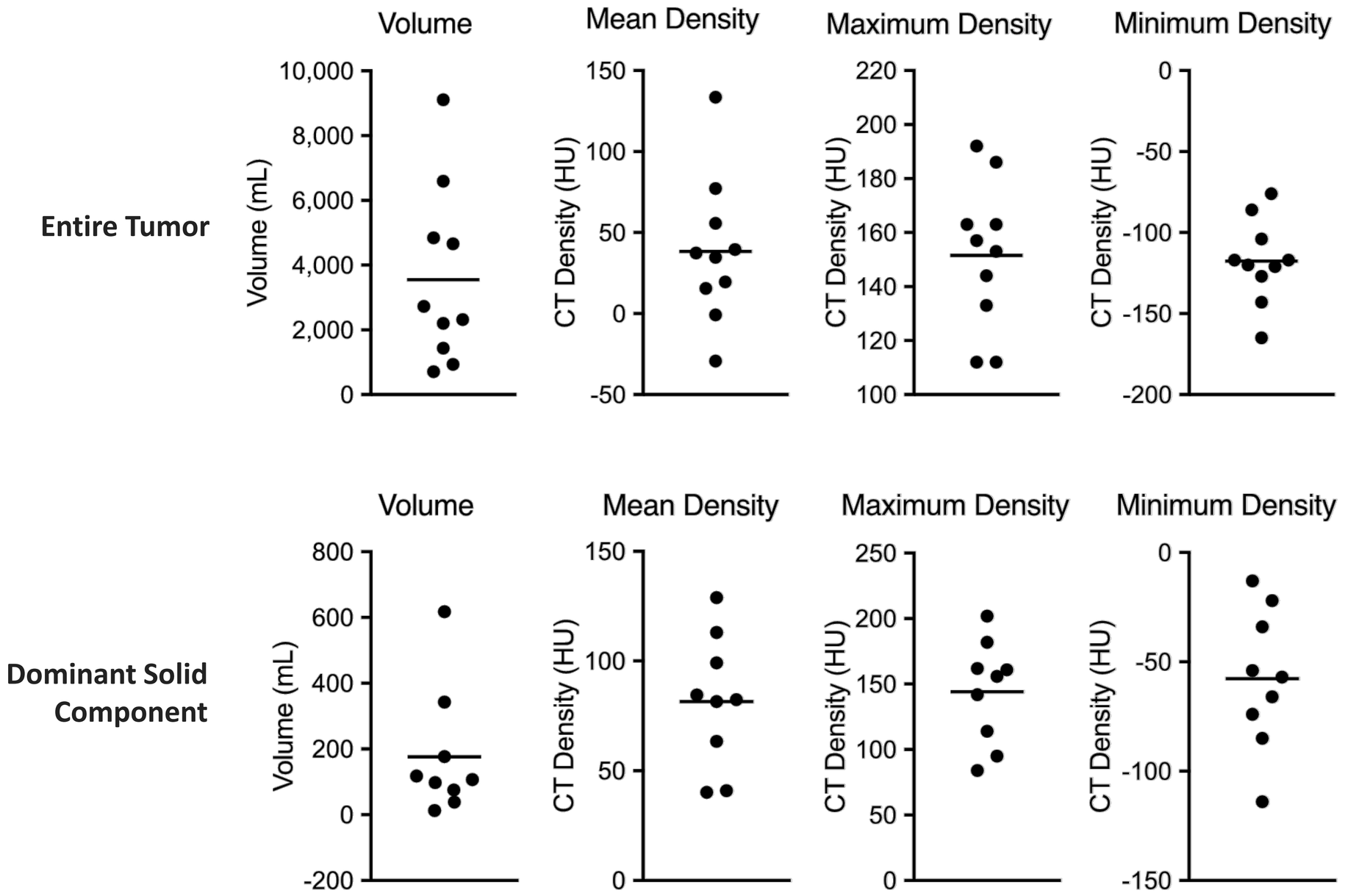






Analysis

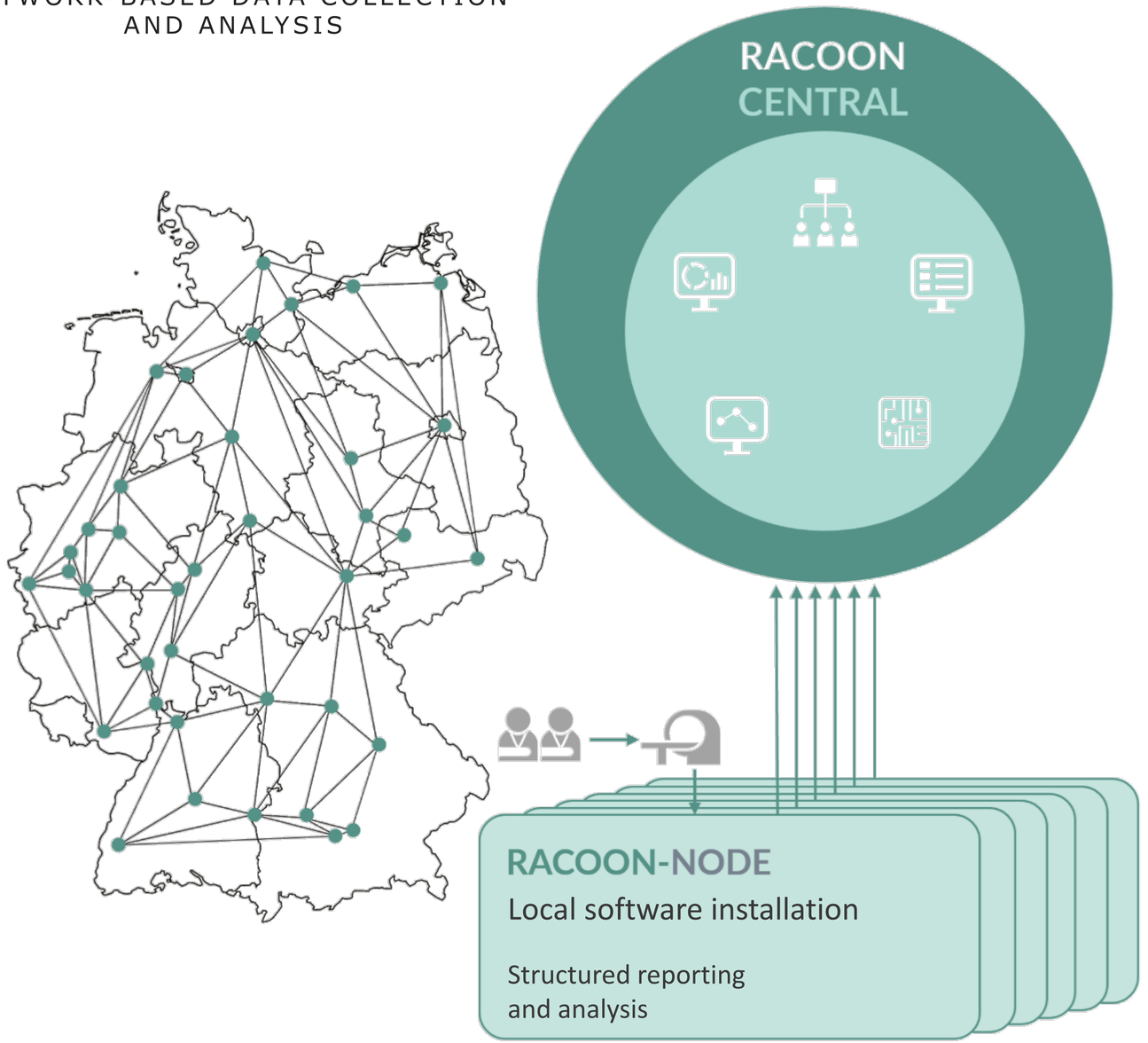
Structured **Radiomics** Characterization of Retroperitoneal Sarcoma Patients



RACOON

NETWORK-BASED DATA COLLECTION
AND ANALYSIS

- Network-based national data collection during the Covid-19 pandemic
- RACOON CENTRAL:
  visual dashboard, central analysis
- RACOON-NODE:
  local data collection and analysis
- Open-source and open-science environment + licensed software
- European data protection standards



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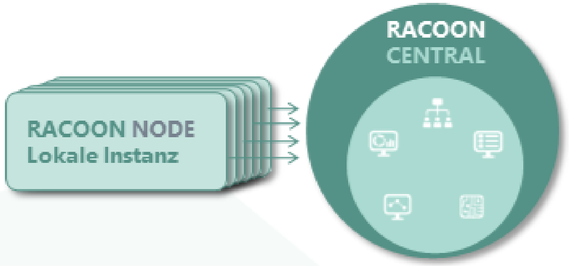

RACOON-UPLOAD

Anonymisierung und starke Pseudonymisierung
vor der Datenübertragung

RACOON-ANNOTATION

- Study-specific workflows
- Measurements/tools
- Segmentation

RACOON-AI

- Automated image processing
- Exchange of AI applications between collaborators
- Autmated image-based quality checks

RACOON-REPORTING

- Standardized, structured reporting
- Quality checks during data collection
- Image annotations linked to report
- eCRF with audit trail

RACOON-BACKBONE

- Image data import via PACS interface
- User rights management

RACOON

NETWORK-BASED DATA COLLECTION
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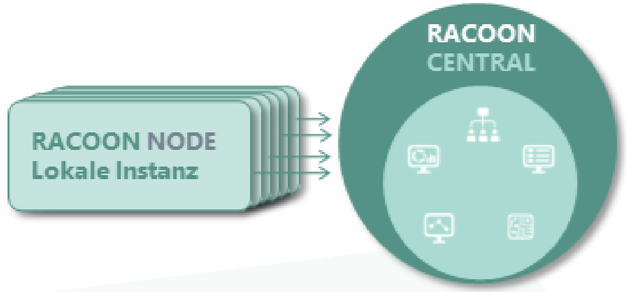

mint Analytics Dashboard

Monitoring and central data analysis

Visual Dashboard

Monitoring of data quality and AI performance at all site

JIP Central

Central analysis of multicenter cohorts

Central Registry

Software update distribution

Central ModelStore

Distribution of new worfklows, templates and AI models

mint, Satori und Imfusion Central

Annotations, quality improvements and reference radiology

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TARPSWG
www.tarpswg.org

@TARPSWG

Markus Albertsmeier
malberts@med.lmu.de

Wolfgang Kunz
wkunz@med.lmu.de

Visit our website
at
www.tarpswg.org