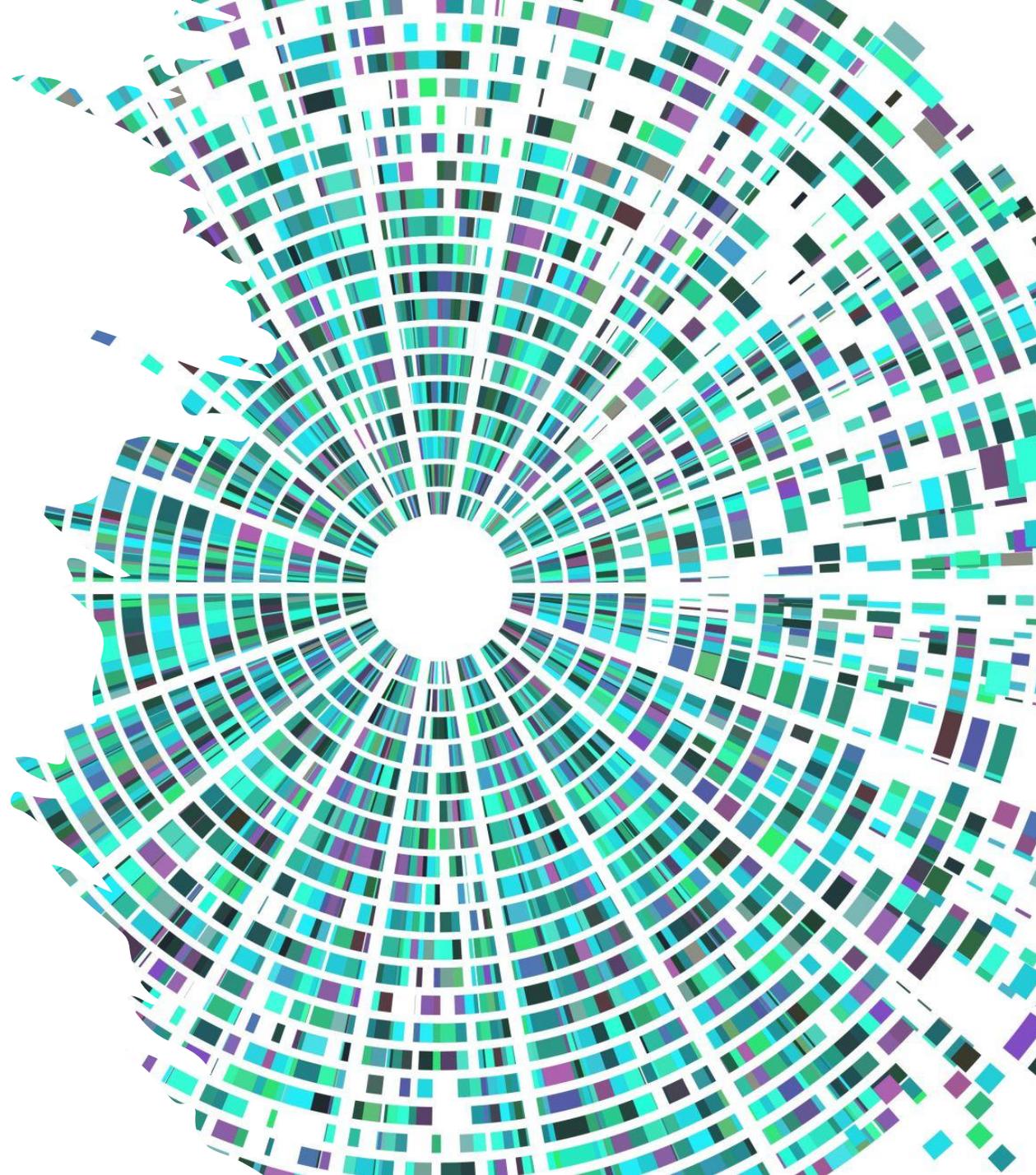


Use Cases from Active AI Clinical Evaluation Projects at Guy's Cancer Centre

Danny Ruta, AI Clinical Lead, Guy's
Cancer



Three AI Clinical Evaluation Case Studies at Guy's Cancer Centre

Clinical Decision Support Tool Evaluations

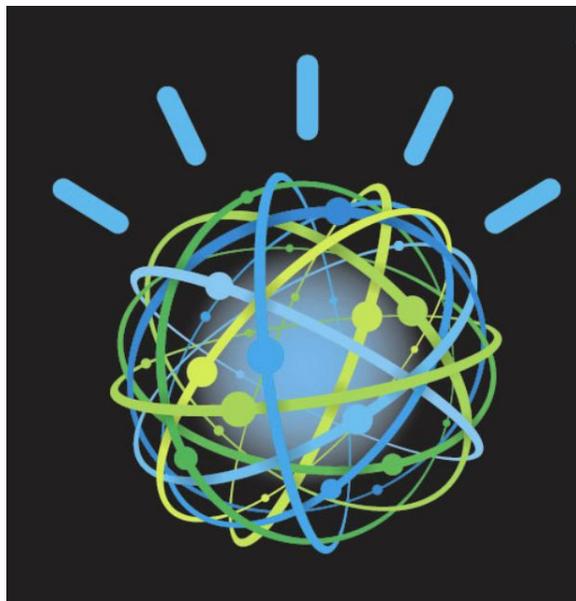
- Breast Cancer
- Prostate Cancer

Clinical Trials Matching Tool Evaluation in Early Phase Cancer Clinical Trials



AI Clinical Decision Support Tools – 2 Solutions

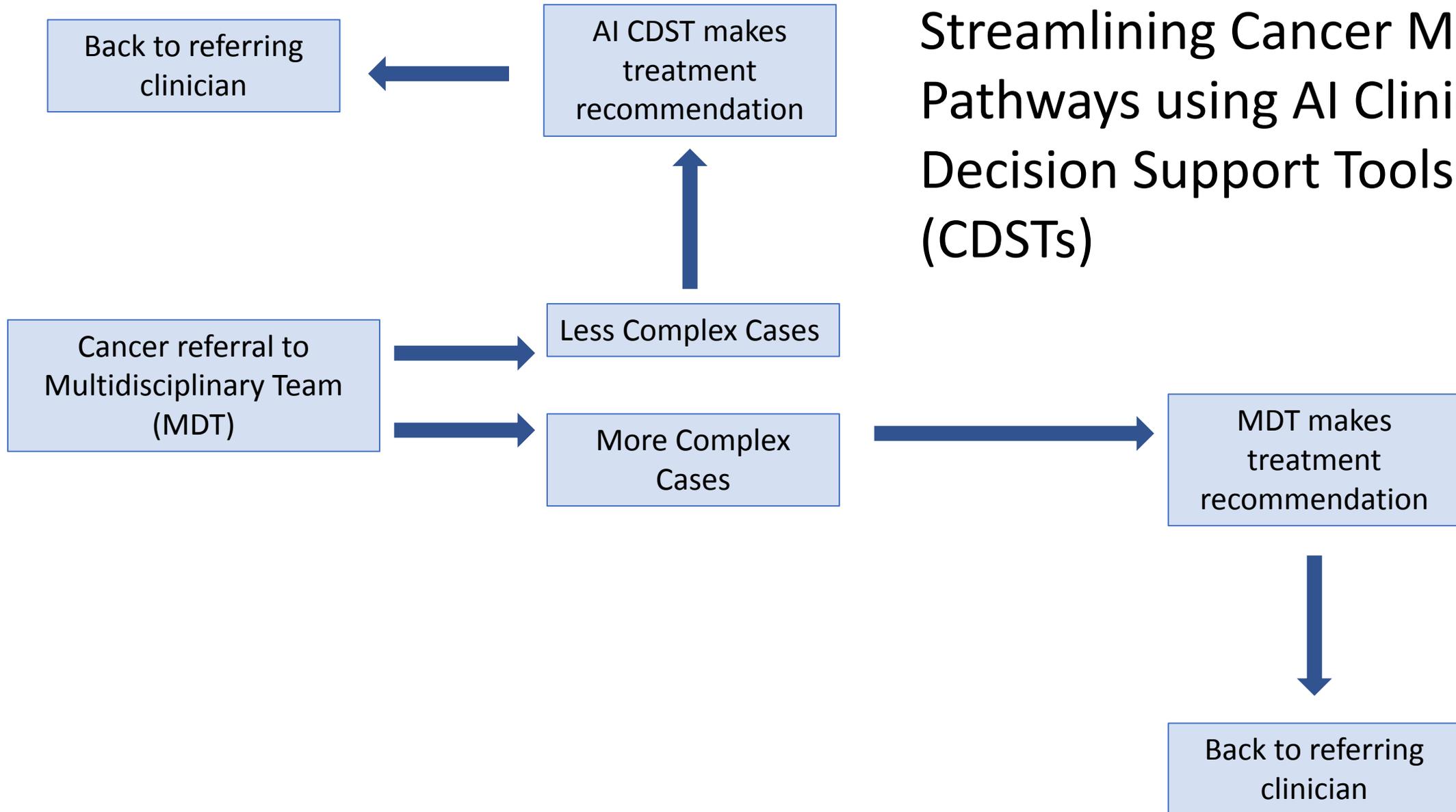
Watson for Oncology



PROSAIC-DS



Streamlining Cancer MDT Pathways using AI Clinical Decision Support Tools (CDSTs)



Triage team 1



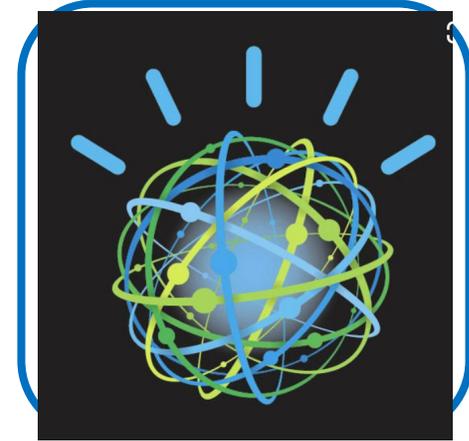
Onc 1 Sur 1

Triage team 2



Sur 2 Onc 2

Triage by WFO



Onc 1 Sur 1 Sur 2 Onc 2



213 historic
non-metastatic
breast cancer
patients

4 Clinicians Agree Best Practice Recommendations

Triage team 1



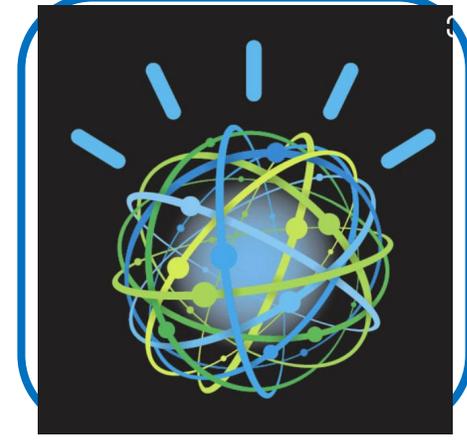
96%

Triage team 2



92%

Triage by WFO

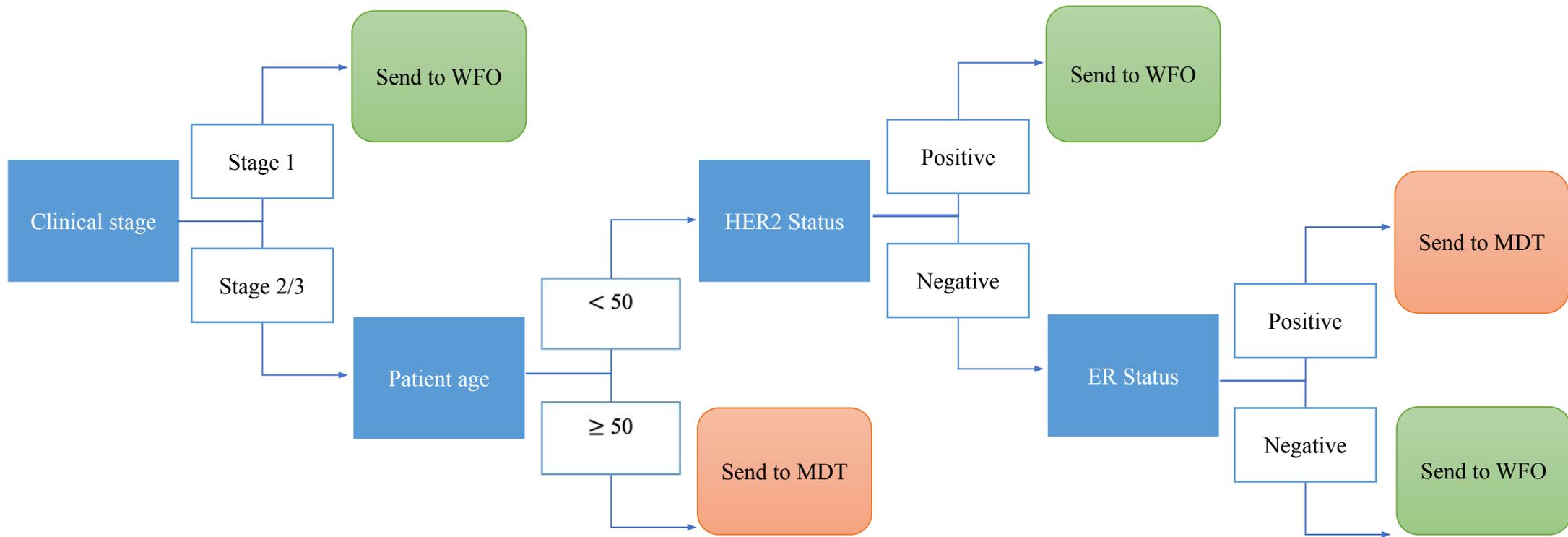


92%

Percentage Concordance with Best Practice Consensus

40% of patients identified by the decision tree can be sent to Watson with 100% concordance between Watson and Best Practice Consensus

Decision tree for treatment plan. Abbreviations: HER2, Human epidermal growth factor receptor 2; ER, Estrogen receptor; PR, Progesterone receptor.



Pathway

REF

DX

ST

TX

SX

SY

SV

You can click most captions to get extended information

Prostate biopsy pathway data

Labs

PSA (most recent) 8 ng/mL

Biopsy

Prostate biopsy type Targeted Systematic Combined No biopsy

Most recent prostate biopsy date

Left biopsy

Has invasive cancer been documented on prostate biopsy? Yes - biopsy positive for malignancy

Gleason primary grade 3

Gleason secondary grade 3

Prostate biopsy result detail Conventional (acinar) adenocarcinoma

Prostate biopsy result detail (non-cancer) Select...

Treatment Strategy

- Active surveillance (Preferred) [GL = 4]
- Radical prostatectomy [GL = 3]
- Radical radiotherapy [GL = 3]

Tests: Staging and Follow-up

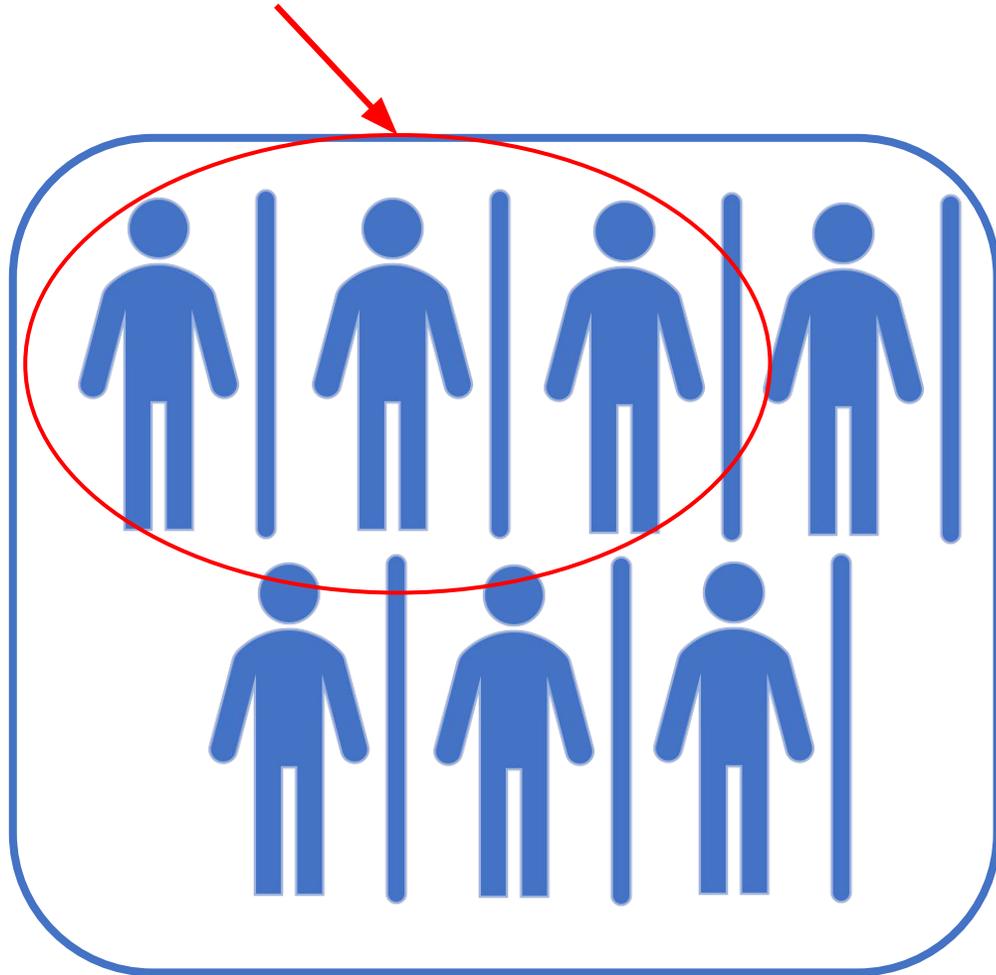
Show other options

MDT assessment

- Complete and finalise
- Keep the case under review

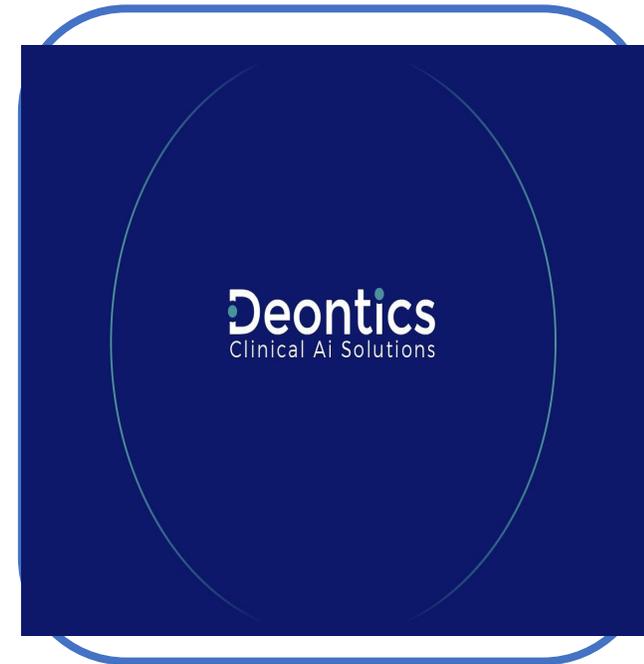
Cancel Submit

Clinical Consensus Recommendation = 3 or more clinicians make the same recommendation



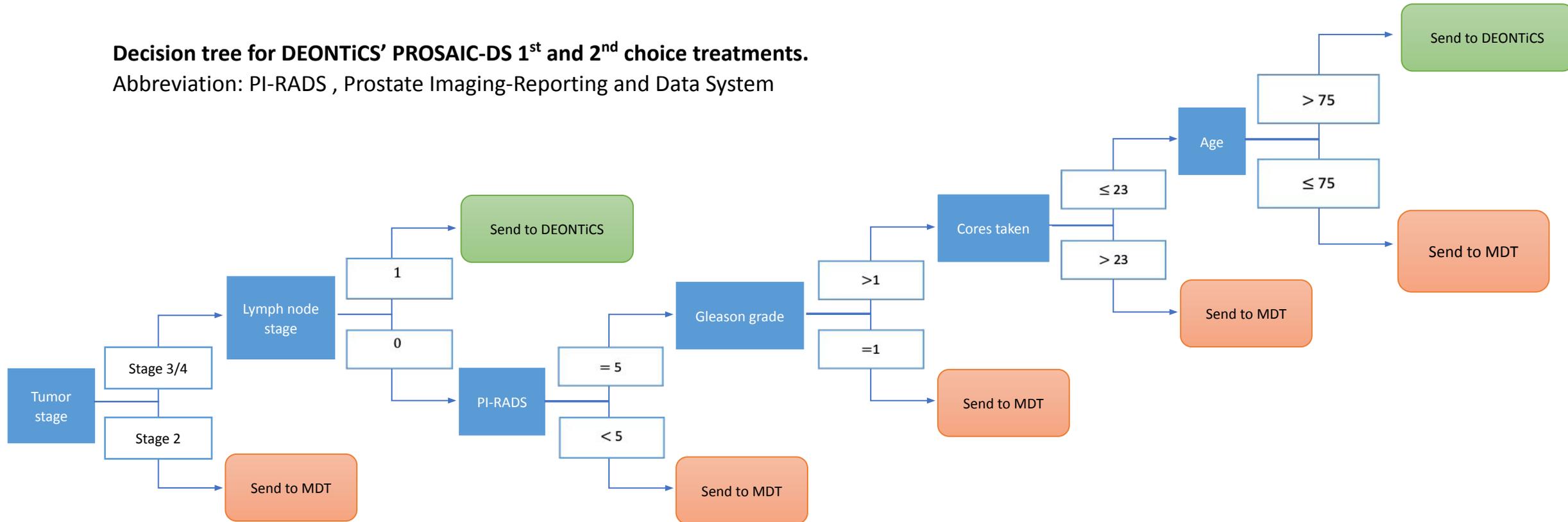
6 Urologists & 1 Clinical Oncologist

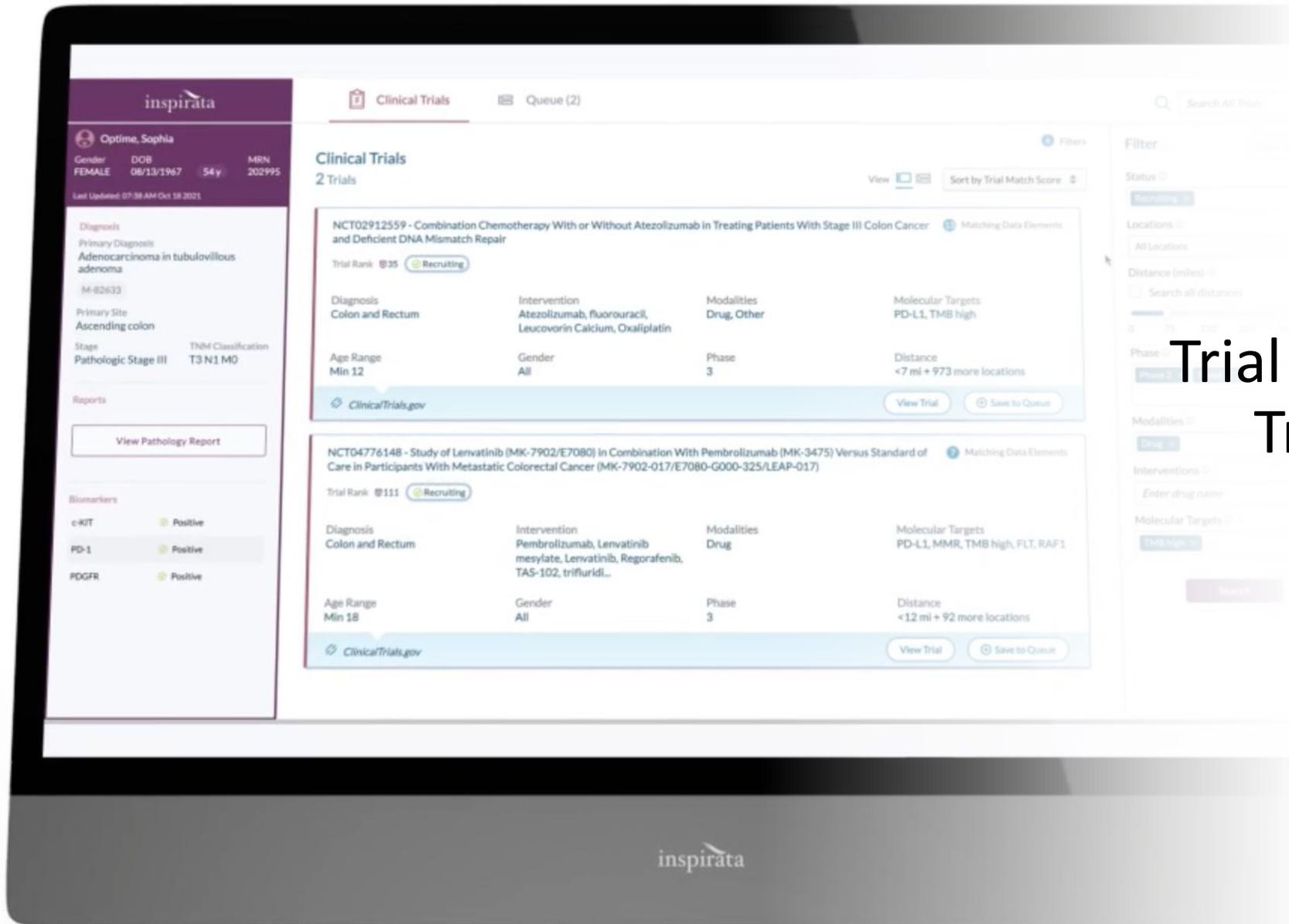
73%
concordance
between
Clinical
Consensus &
PROSAIC-DS



17% of patients identified by the decision tree can be sent to Deontics' PROSAIC-DS with 97% concordance between Deontics and Clinical Consensus

Decision tree for DEONTiCS' PROSAIC-DS 1st and 2nd choice treatments.
Abbreviation: PI-RADS , Prostate Imaging-Reporting and Data System





Trial Navigator Clinical Trials Matching Solution

inspirata

Optime, Sophia

Gender FEMALE DOB 08/13/1967 54y MBRN 202995

Last Updated: 07:58 AM Oct 18 2021

Diagnosis
Primary Diagnosis
Adenocarcinoma in tubulovillous adenoma

M-82633

Primary Site
Ascending colon

Stage Pathologic Stage III TNM Classification T3 N1 M0

Reports

View Pathology Report

Biomarkers

c-KIT Positive

PD-1 Positive

PDGFR Positive

Clinical Trials

Queue (2)

Search All Trials

Clinical Trials
2 Trials

View Sort by Trial Match Score

NCT02912559 - Combination Chemotherapy With or Without Atezolizumab in Treating Patients With Stage III Colon Cancer and Deficient DNA Mismatch Repair

Trial Rank 35 Recruiting

Diagnosis Colon and Rectum	Intervention Atezolizumab, fluorouracil, Leucovorin Calcium, Oxaliplatin	Modalities Drug, Other	Molecular Targets PD-L1, TMB high
Age Range Min 12	Gender All	Phase 3	Distance >7 mi + 973 more locations

ClinicalTrials.gov View Trial Save to Queue

NCT04776148 - Study of Lenvatinib (MK-7902/E7080) in Combination With Pembrolizumab (MK-3475) Versus Standard of Care in Participants With Metastatic Colorectal Cancer (MK-7902-017/E7080-G000-325/LEAP-017)

Trial Rank 111 Recruiting

Diagnosis Colon and Rectum	Intervention Pembrolizumab, Lenvatinib mesylate, Lenvatinib, Regorafenib, TAS-102, triflurid...	Modalities Drug	Molecular Targets PD-L1, MMR, TMB high, FLT, RAF 1
Age Range Min 18	Gender All	Phase 3	Distance <12 mi + 92 more locations

ClinicalTrials.gov View Trial Save to Queue

Filter

Status

Recruiting

Locations

All Locations

Distance (miles)

Search all distances

Phase

Phase 3

Modalities

Drug

Interventions

Enter drug name

Molecular Targets

TMB high

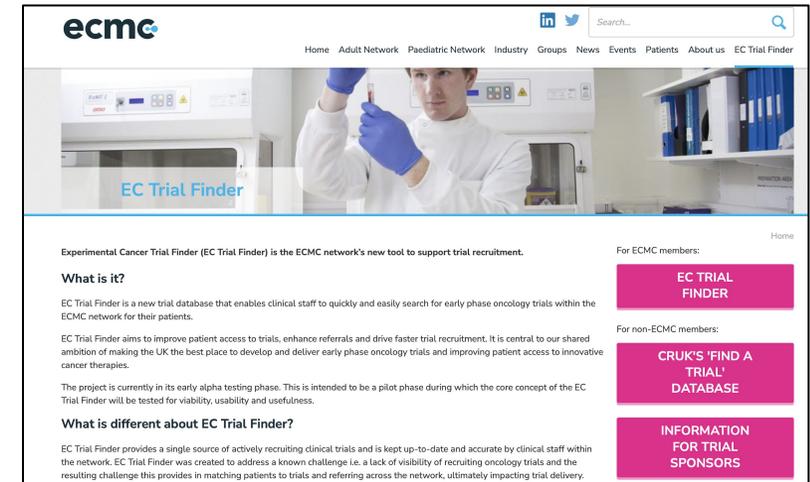
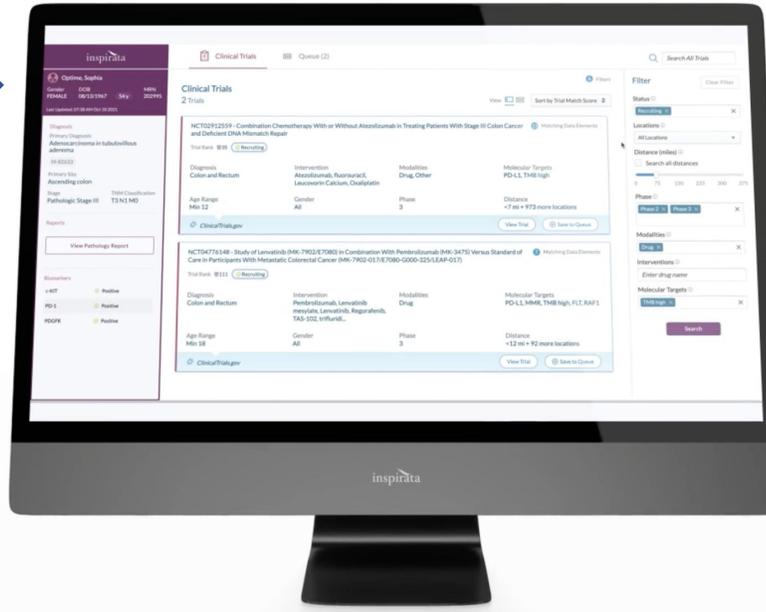
Search

inspirata

Referral letters to
Early Phase Trials
Team

Trained on 60 historic
patients referred to the Early
Phase Clinical Trials Team

ECMC Trial Finder Website



Genomic reports
ordered by Early
Phase Trials Team

40 historic patients matched
to trials and matches
evaluated by 2 oncologists

Initial Findings from Trial Navigator Evaluation



Was each patient successfully matched to a clinically relevant trial?



Were multiple clinically relevant trials matched to each patient?



Were patients matched with clinically relevant trials outside of Guy's Cancer Centre?



Did Trial Navigator achieve comparable or better performance against historical matches?

Guy's Cancer Centre and Trial Navigator

Evaluation Brief

Trial Navigator to identify 5 early-phase open ECMC clinical trial matches 40 patients within a 100 mile radius of Guy's Cancer Centre.

QI Score

- Tumour & biomarker match: 4
- Biomarker match: 3
- Tumour match: 2
- Generic match: 1
- Ineligible: 0

Key Takeaways

Yes No

	Was each patient successfully matched to a clinically relevant trial?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--	---	-------------------------------------	--------------------------

	Were multiple clinically relevant trials matched to each patient?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--	---	-------------------------------------	--------------------------

	Were patients matched with clinically relevant trials outside of Guy's Cancer Center?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--	---	-------------------------------------	--------------------------

	Did Trial Navigator achieve comparable or better performance against historical matches?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
--	--	-------------------------------------	--------------------------

Key Take
Home
Messages

AI Adoption not moving fast
enough

There's a place for Expert Systems

AI Design & Development in
Healthcare must be Clinician &
Patient Led

Use Cases from Active AI Clinical Evaluation Projects at Guy's Cancer Centre

Danny Ruta, AI Clinical Lead, Guy's
Cancer

