NHS
Sandwell and
West Birmingham
NHS Trust

An AI Journey in Healthcare

OUTWARD BOUND

acorn
Adventure

AMDAHL
a Fujitsu company

Camden

CHESHIRE
COUNTY COUNCIL

Digital
Gaps

AUSTRALIAN
BANANAS
Make your body sing!

British Gas

threshers

GREENALLS

Walsall Council

VISA

FLOORS-2-GO
THE FLOORING SPECIALIST

Devon
County Council

Cumbria
County Council

Leeds
CITY COUNCIL

TEENAGE
CANCER
TRUST

WARRINGTON
Borough Council

FUJITSU

centrica

enza

Herefordshire
Council

Virgin
COSMETICS
COMPANY

RACAL

GAMES
WORKSHOP

South
Staffordshire
Council

VERISEC

local
low carbon lichfield

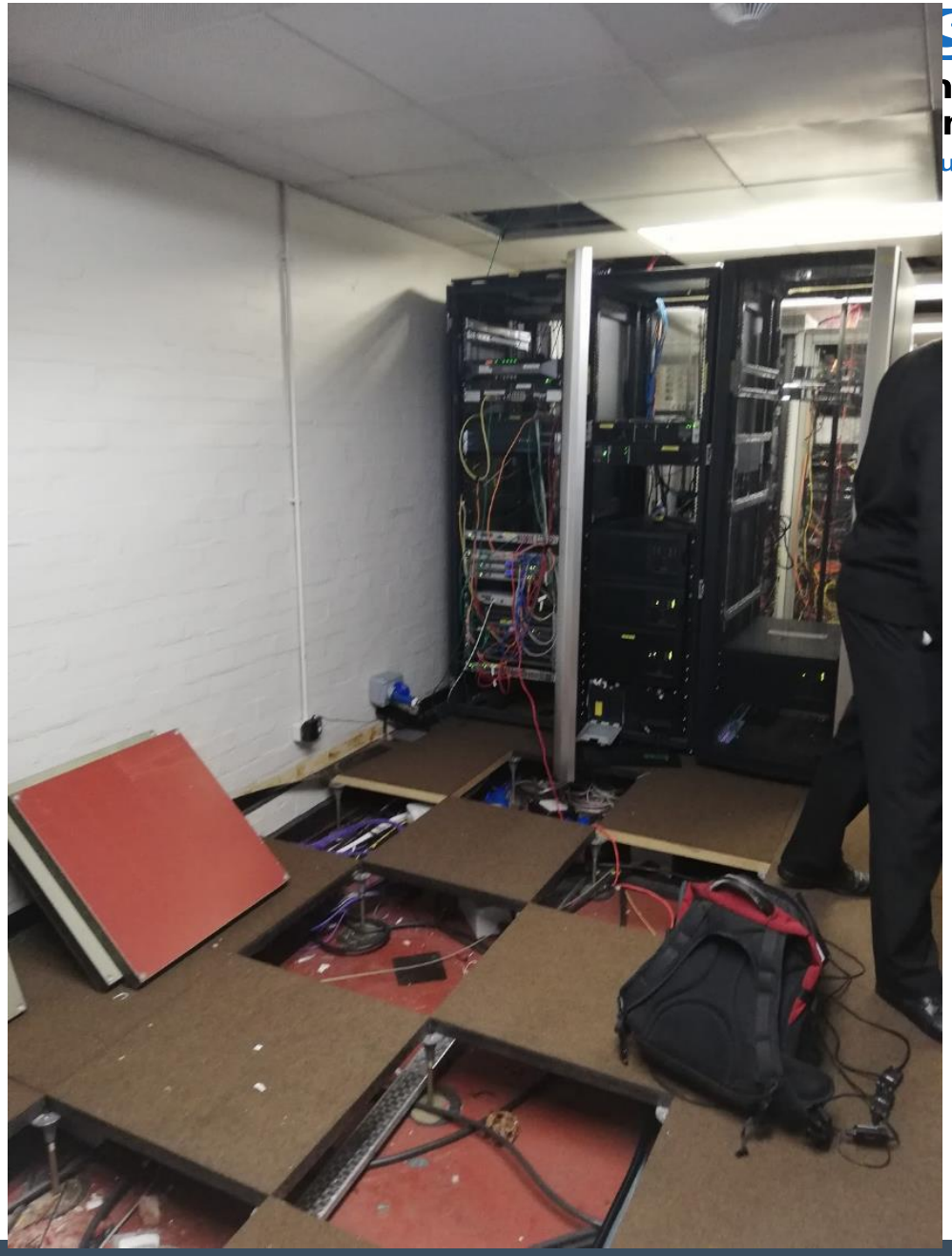
METHODS
ADVISORY

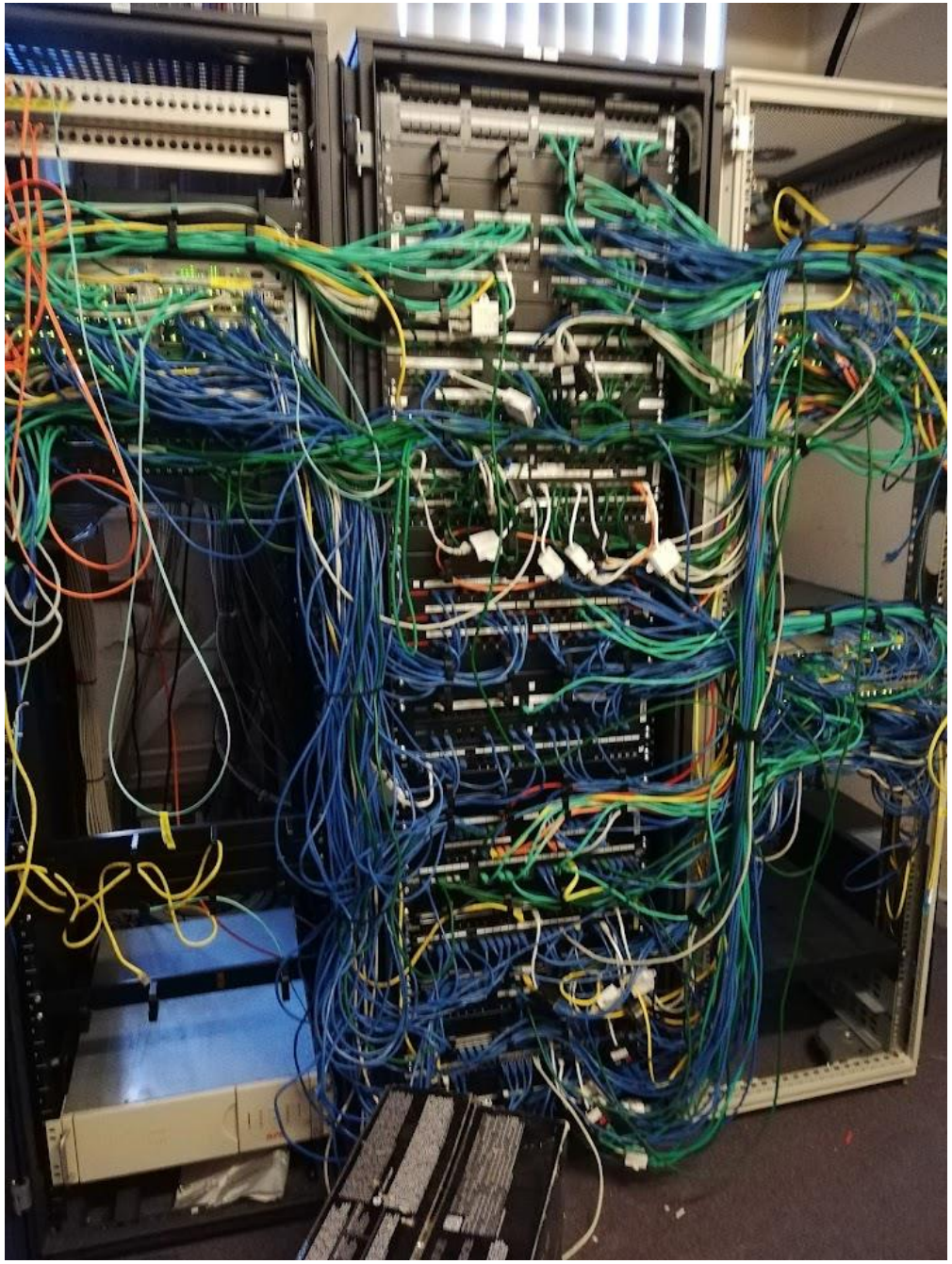
Sandwell
Metropolitan Borough Council

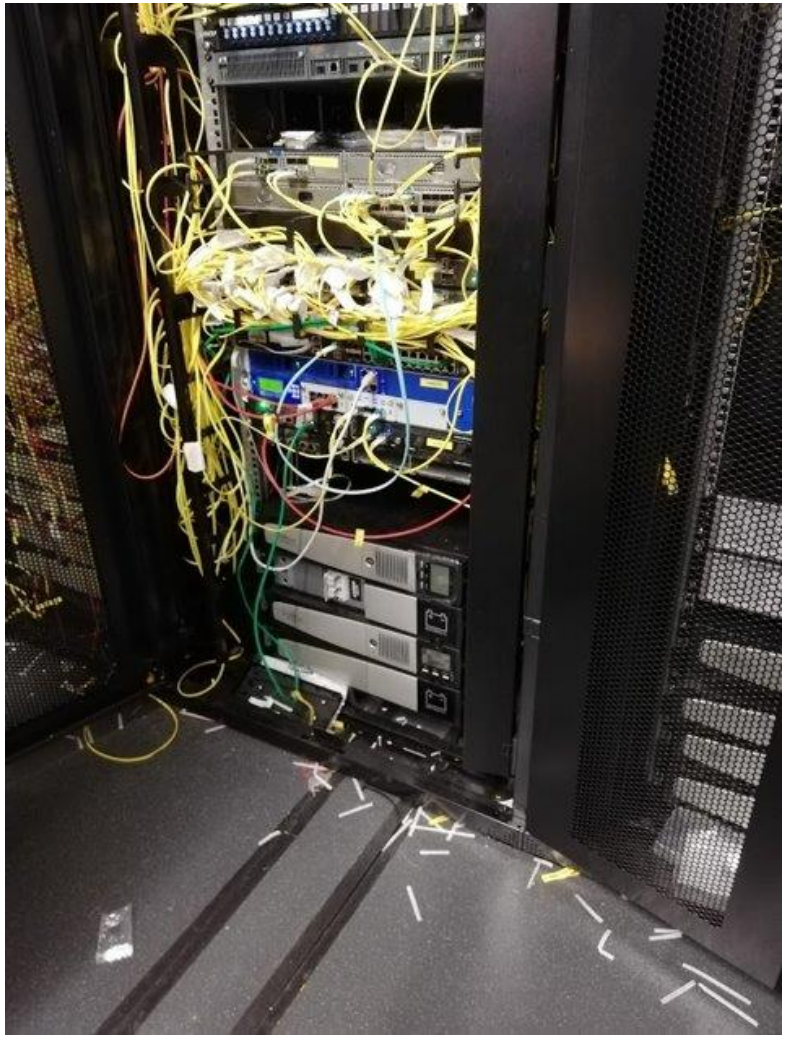
ISLINGTON

FSA

Redpoint
climbing centre







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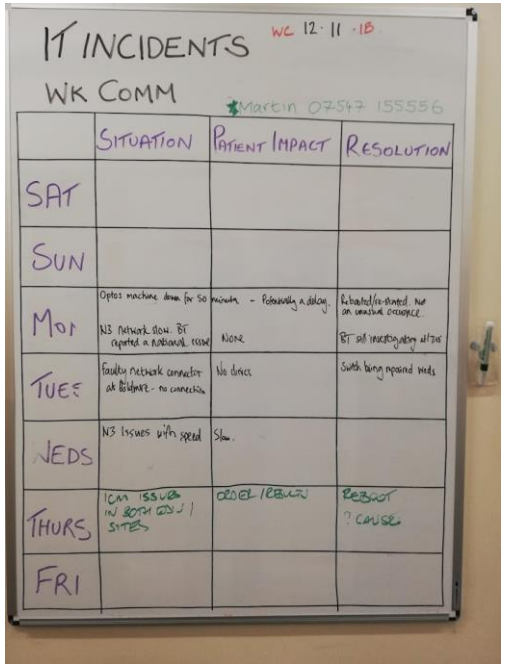

IT INCIDENTS wc 12·11·18

WK COMM

Martin 07547 155556

	SITUATION	PATIENT IMPACT	RESOLUTION
SAT			
SUN			
MON	Optos machine down for 50 minutes - Potentially a delay. N3 network slow. BT reported a network issue	None	Rebooted/re-started. Not an constant occurrence. BT still investigating at 7pm
TUES	Faulty network connector at Birchfield - no connection	No clinics	Switch being repaired Weds
WEDS	N3 issues with speed	Slow.	
THURS	ICM ISSUES IN BOTH CDSJ SITES	ORDER/RESULTS	REBOOT ? CAUSE
FRI			

IT INCIDENTS wk 10·12·18

Martin 07547 155556

	SITUATION	PATIENT IMPACT	RESOLUTION
SAT			
SUN			
MON			
TUES			
WEDS	ICM printing slow/ not working. Electric connections down from no heating	ED & Prescription printing delayed. ED sent to paper & on War Drivers ... - link of attachment	Resolved 12:30
THURS			
FRI	overnight issue with patient login results in PACS - still ongoing 7:35		Resolved = 9:30 Rebooted & extended staff attendance

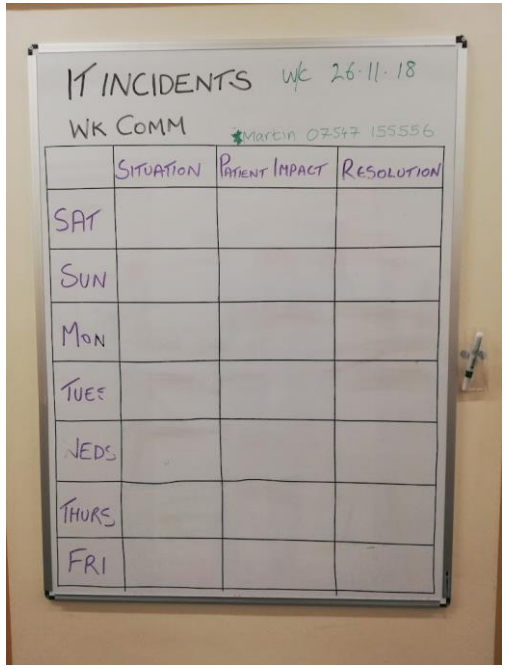
IT INCIDENTS wk 1/3/19

Martin 07547 155556

	SITUATION	PATIENT IMPACT	RESOLUTION
SAT	LUNCH CANCELLED	COMMUNITY LT ACCESS LOST	Electricity restored
SUN	ICM not working - no patient flow		Certificate applied
MON			
TUES			
WEDS	ICM blocked - no patient flow		Queue cleared
THURS	S drive storage full	N/A on Clinical Systems	Storage increased
FRI			

Martin 07547 155556

	SITUATION	PATIENT IMPACT	RESOLUTION
SAT			
SUN			
MON			
TUES			
WEDS			
THURS	Blood track not able to link Medi. System restart	Manually many blood at present	Suppliers did same. Management of the database
FRI	Patient Bill stopped communicating to ICM/CSA	ED visits not in ICM, electronic imaging order placed manually for 2 hours	Patient first service re started. (Thurs 9 am - 11:40


IT INCIDENTS wk 26·11·18

WK COMM

Martin 07547 155556

	SITUATION	PATIENT IMPACT	RESOLUTION
SAT			
SUN			
MON			
TUES			
WEDS			
THURS			
FRI			

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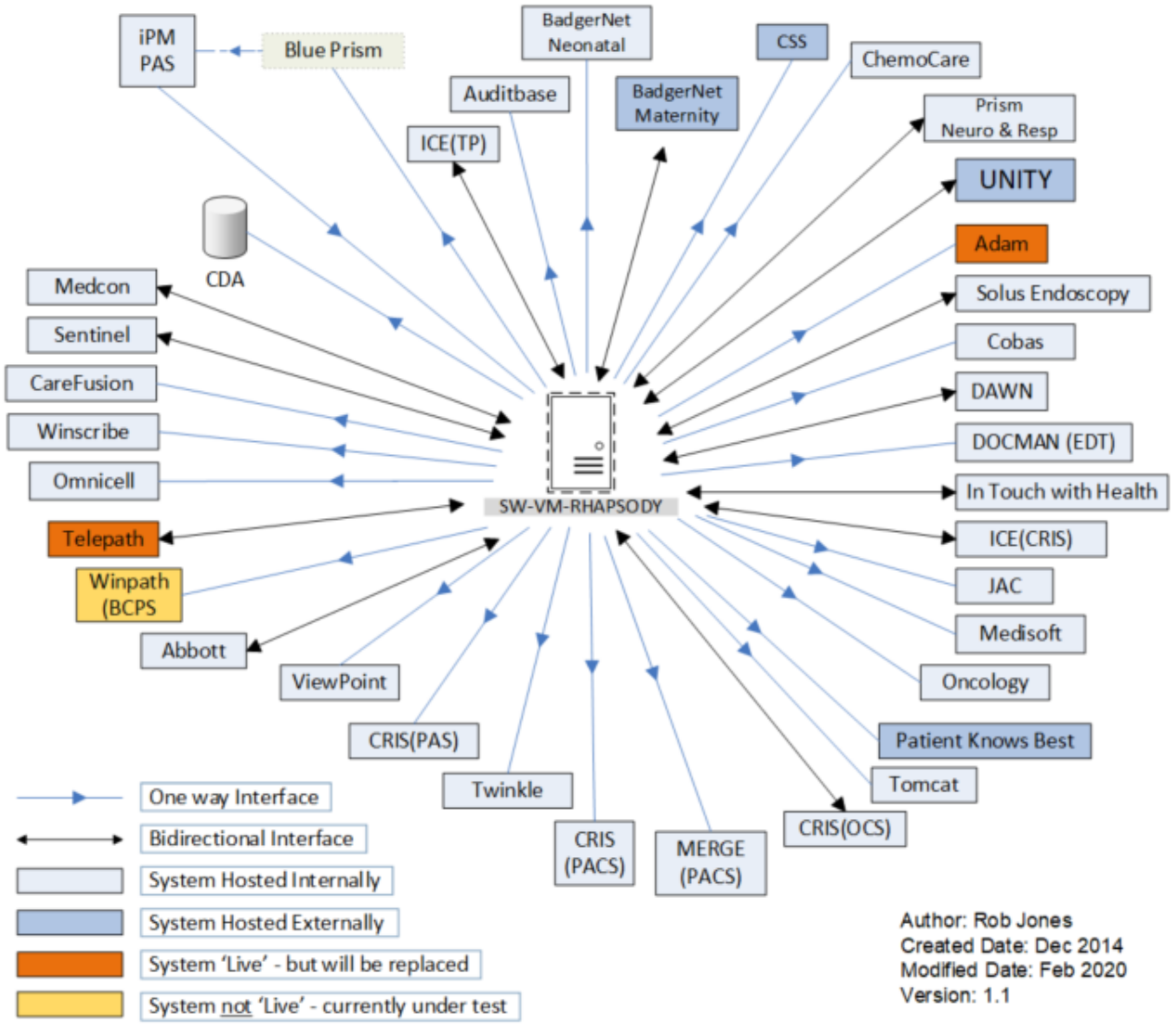
Rhapsody interfaces



Author: Rob Jones
Created Date: Dec 2014
Modified Date: Feb 2020
Version: 1.1

DRU

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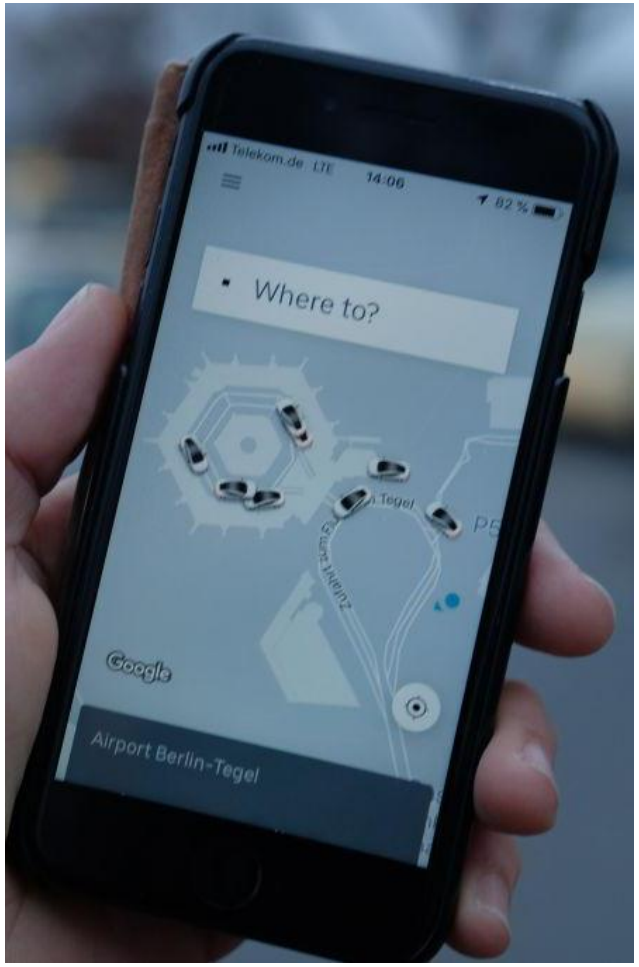
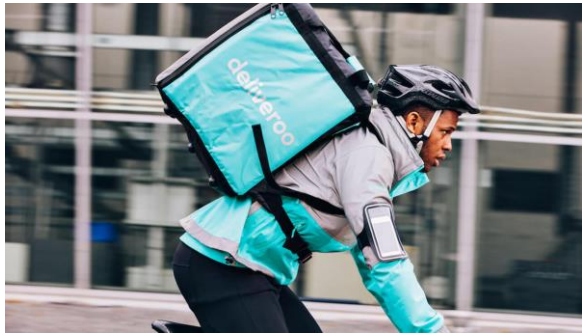
Duvel Café
Kontantfri
restaurang
We do not
accept cash
BEL
PILS
Maredsous





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Radiological Society of North America

IT progression

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People

Process

Tools

Technology

IT Teams

Skilled IT Teams

Retention

Succession planning

Telephony Systems

Incident Process

Change Management

IT Strategy

Document Core IT Processed

Incident Process

Problem Management

Service Change Requests

Mobile Devices and Mobile Device Management

CMDB

Help Desk

Midland Met

Web Based everything

E-Identity

Virtual Desktop Infrastructure

PRTG

Who-ogle

IT Chat Bots

Video Conferencing

Bleeps

Mobility

Usability

Unity

Patient Portal

Cloud hosting

PAS Upgrade

Medical Devices

AI

Stabilise

Normalise

Maximise

Image based vision for information sharing

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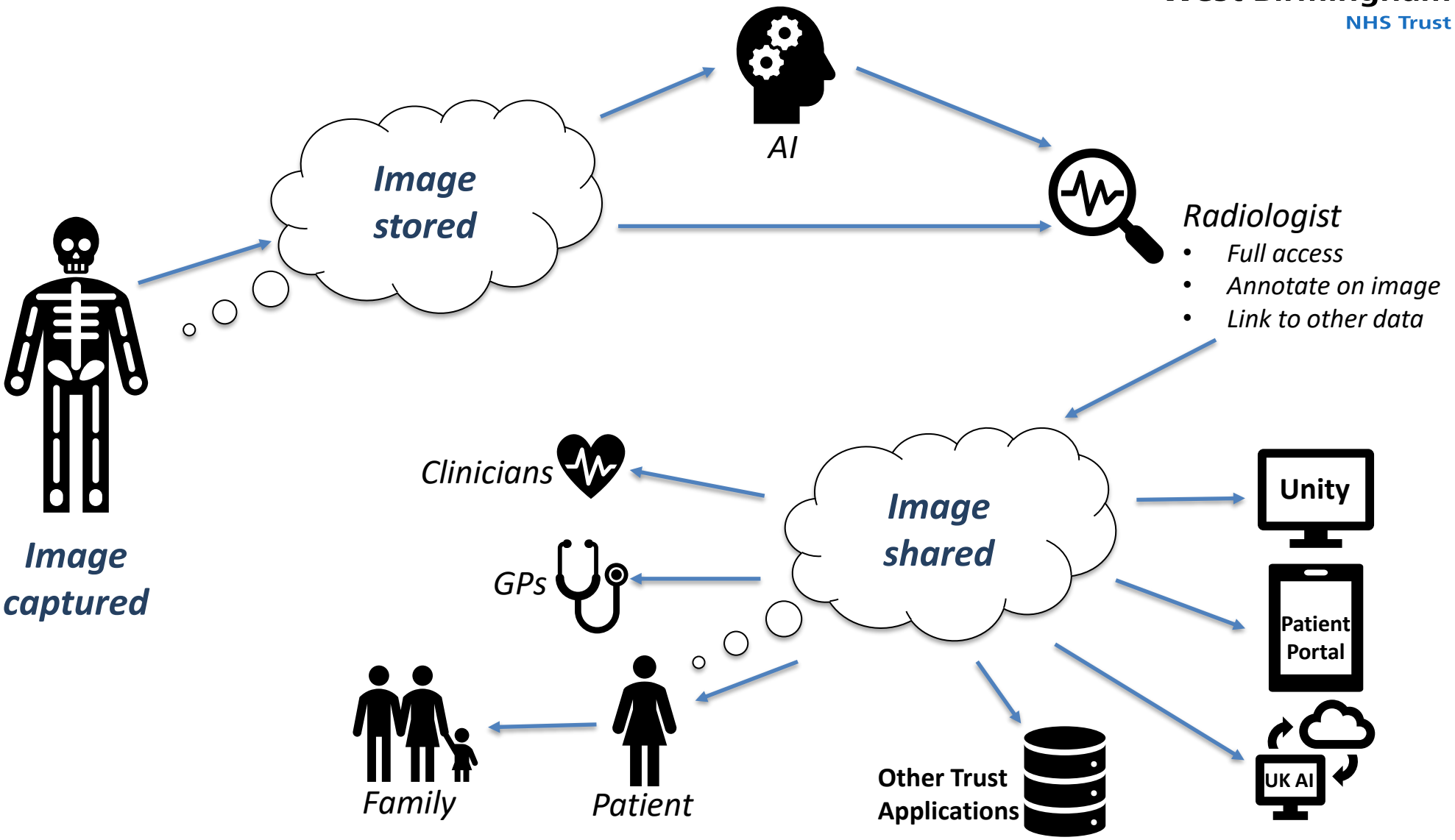
Software Strategy

- Security in Activity
- Web based
- Platform independent
- Links to other NHS systems



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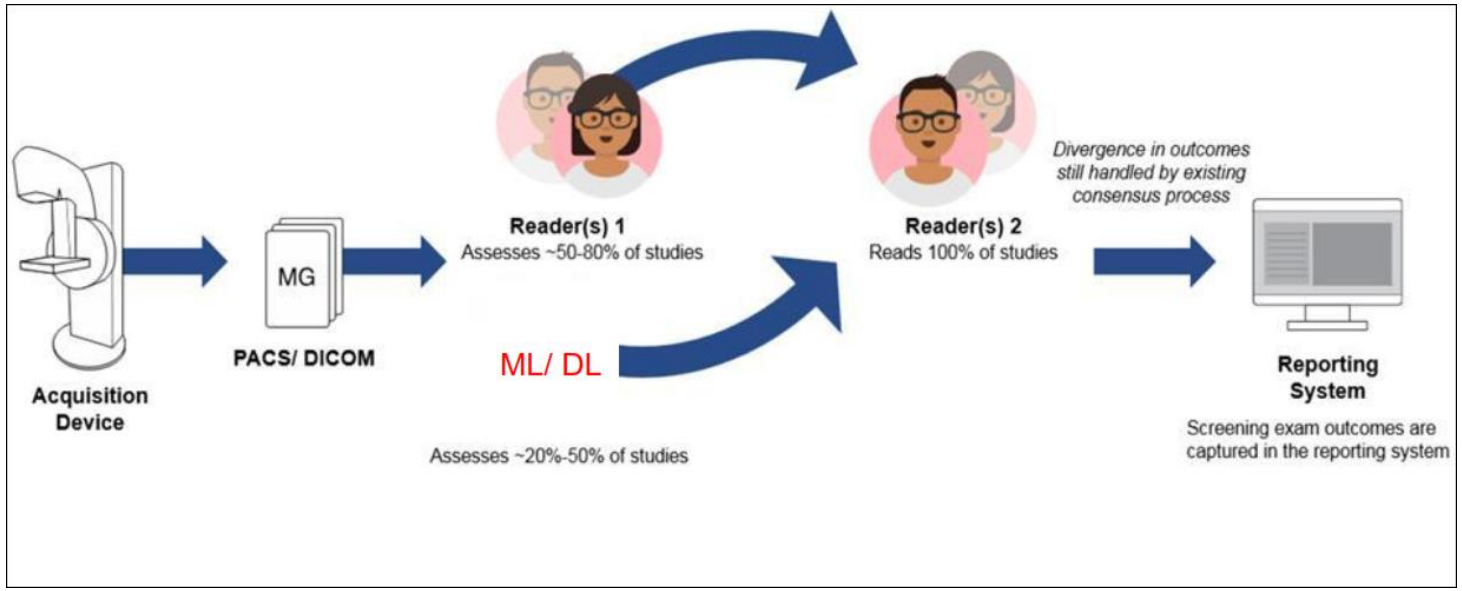
Breast screening example



DOG OR MUFFIN?

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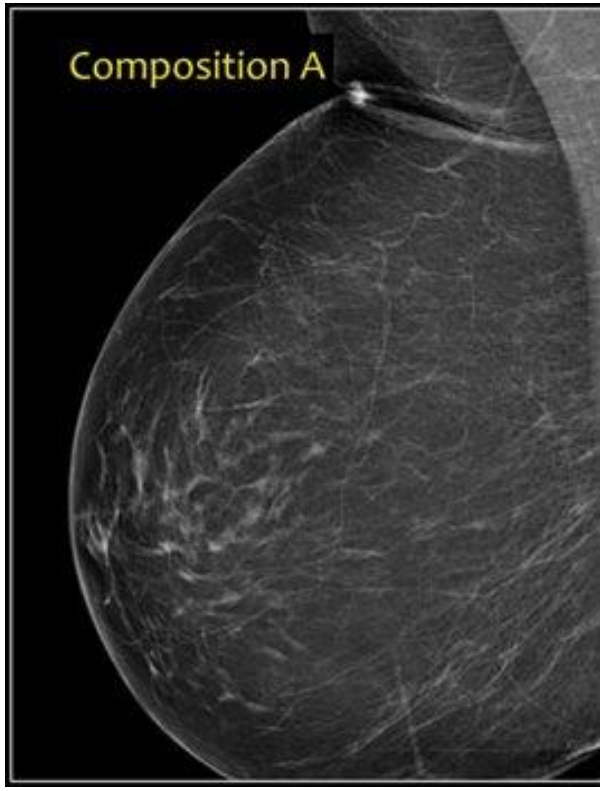
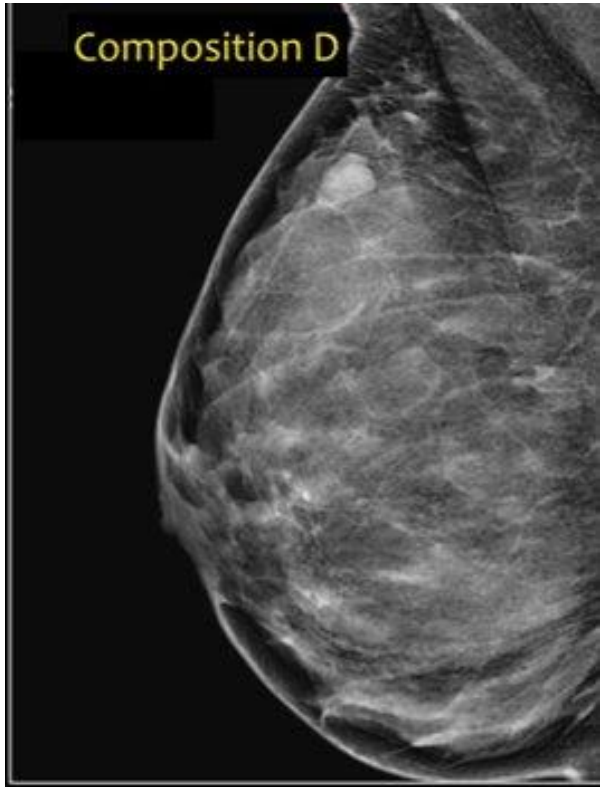
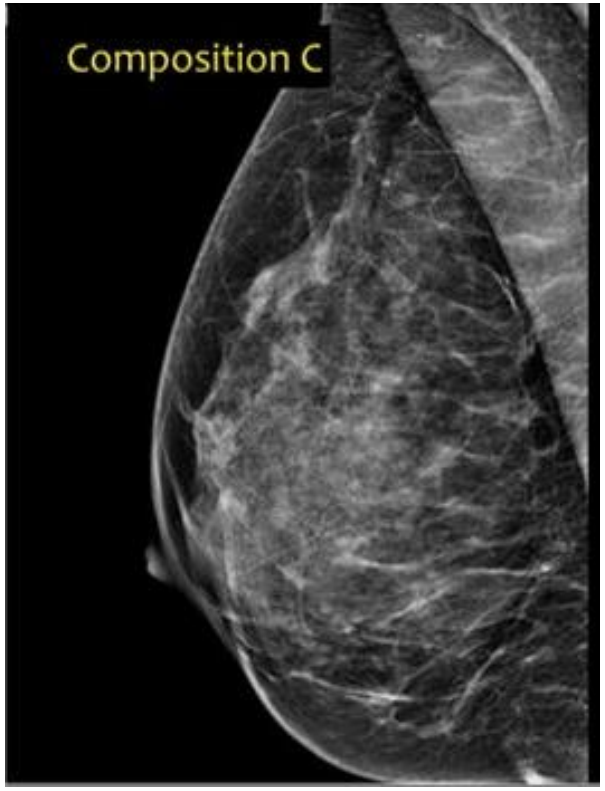
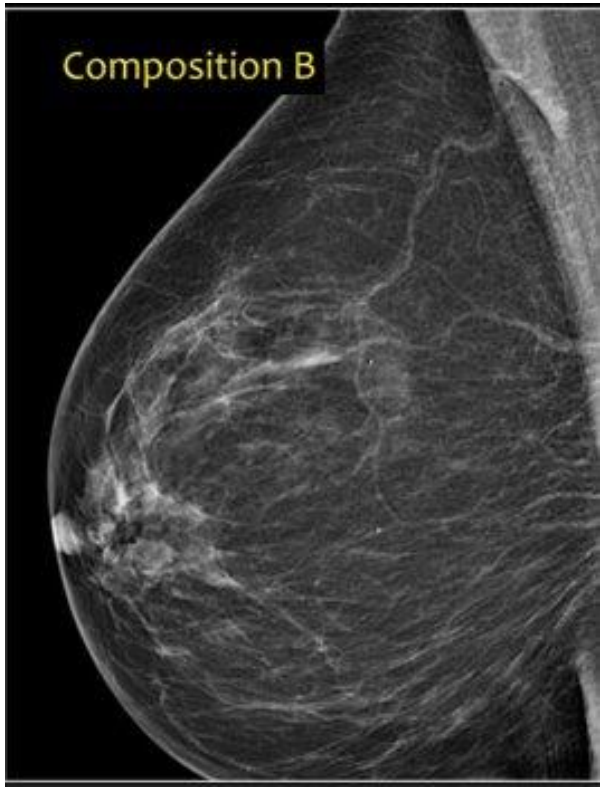
Low to high Mammographic Density (MD)









IBM Watson Health

Care Advisor Breast	Clinical Review Chest v3.2	Care Advisor Liver	Care Advisor Prostate
• Mammography screening. Phase 1 UX	• Chest. Phase 1 & Phase 2 • Retrospective workflow, after radiologists have reported	• Secondary metastases. Phase 1 Evaluation • Lesion detection	• MRI Guided biopsy. Phase 1 UX/UI, Evaluation

Human + Machine = greater than the sum of its parts

Humans excel at:

Common sense | Dilemmas | Morals | Compassion | Imagination | Dreaming | Abstraction | Generalization

Machines excel at:

Natural language | Pattern identification | Locating knowledge | Machine learning | Eliminating bias | Endless capacity

How AI works

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Clinical History :
Clinical Details: Right supraclavicular neck swelling and right arm swelling with venous congestion
Clinical Question: ? central cause for venous obstruction
Past Medical History: Nil

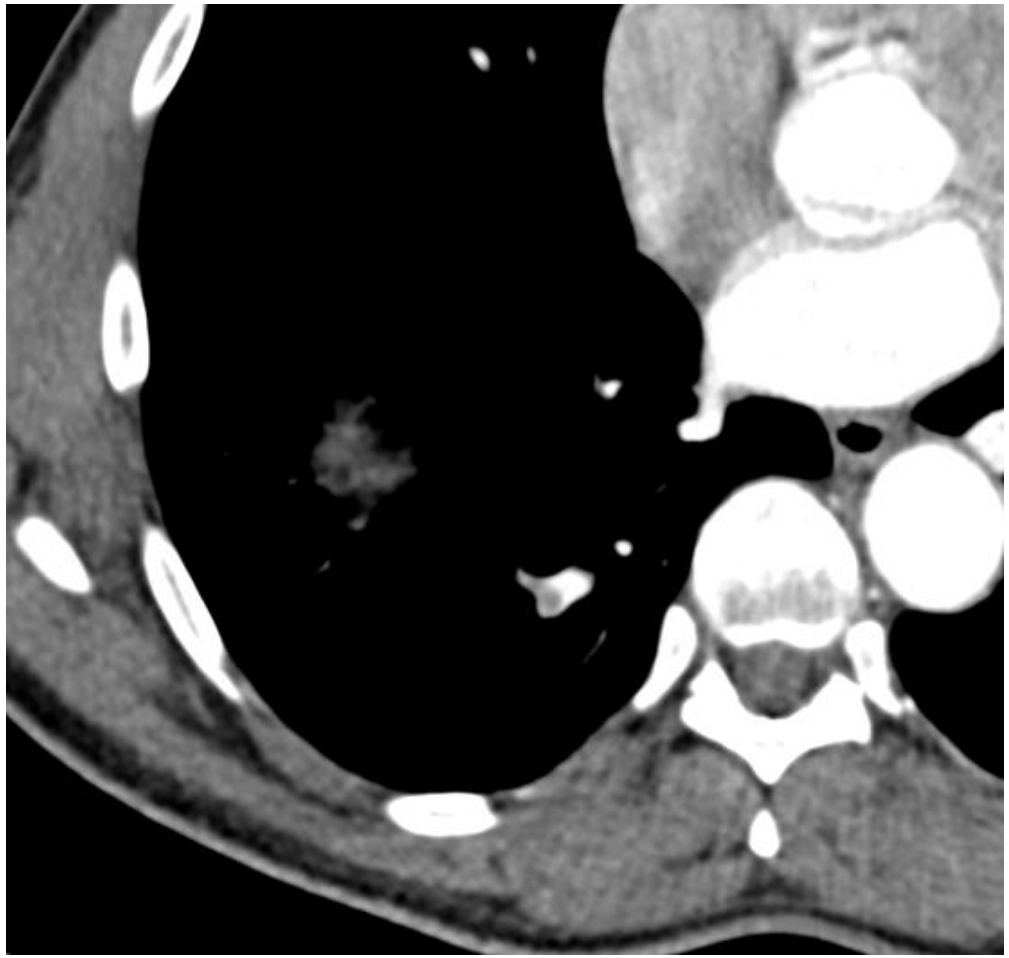
CT Thorax with contrast : Post-intravenous contrast arterial phase examination. No previous cross-sectional imaging available for comparison.

Marked emphysematous changes with apical and paramediastinal bullous formation. No focal collapse, consolidation or large effusion. Mild left basal subpleural patchy groundglass change.

No incidental central pulmonary embolus. Normal heart size.

The right internal jugular vein appears distended and does not enhance on this examination.
Again, this is an arterial phase examination is difficult to visualise either subclavian or axillary veins (bilaterally), some reactive lymphadenopathy noted within the right axilla.
No destructive bone lesion within the thorax.
Within the partially imaged upper abdomen, calcified gallstones within an unremarkable gallbladder. Fatty infiltration within the liver.

Conclusion: Findings are suspicious for right internal jugular and right SVC thrombus. Emphysematous changes within the lungs, no central cause identified.



Missed pulmonary embolism

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Clinical History :
Clinical Details: Right supraclavicular neck swelling and right arm swelling with venous congestion
Clinical Question: ? central cause for venous obstruction
Past Medical History: Nil

CT Thorax with contrast : Post-intravenous contrast arterial phase examination. No previous cross-sectional imaging available for comparison.

Marked emphysematous changes with apical and paramediastinal bullous formation. No focal collapse, consolidation or pleural effusion. Mild left basal subpleural patchy groundglass change.

No incidental central pulmonary embolus. Normal heart size.

The right internal jugular vein appears distended and does not enhance on this examination.
Again, this is an arterial phase examination is difficult to visualise either subclavian or axillary veins (bilaterally), some reactive lymphadenopathy noted within the right axilla.
No destructive bone lesion within the thorax.
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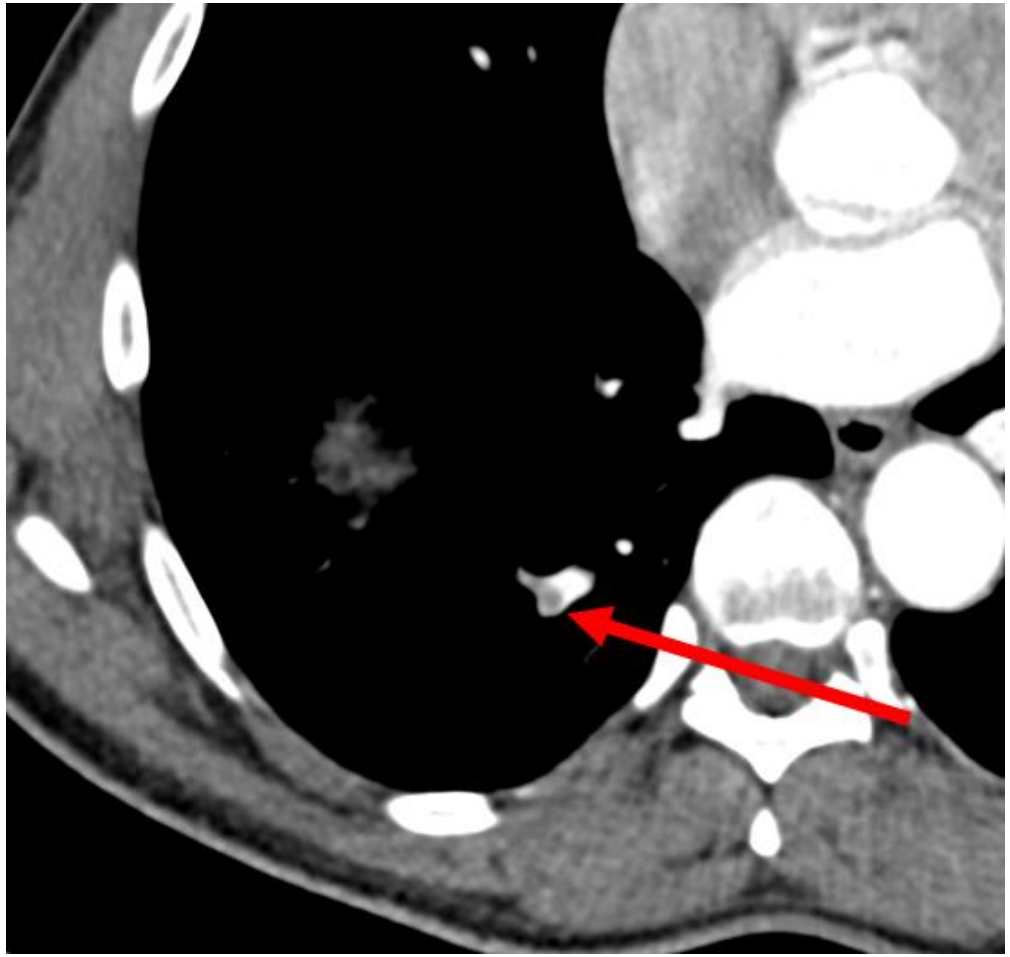
Click to add text



Latest research

- A review of 8 studies
- Studies from 2010 to 2020
- Concluded that evidence not sufficient to recommend use of AI

"it is important to assess how accurate AI is in breast screening clinical practice before changing it"

"AI might reduce the workload of staff, the number of cancers missed at screening, and the number of women called back for further tests when they do not have cancer, however, the quality of evidence is very low"

Use of artificial intelligence for mammographic image analysis in breast cancer screening

Rapid review and evidence map

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Thankyou