MR GERARD MCCABE
ST7 ONCOPLASTIC BREAST SURGERY

Fellowship in Clinical AI
NHS Digital Academy Programme

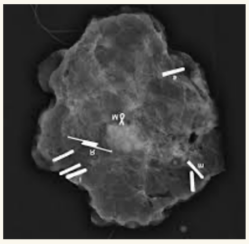
NHS Education for Scotland

01 BACKGROUND

15-20% of patients undergoing breast conserving surgery require a further operation due to positive margins. Intra operative specimen mammography is used to assess margins and decide on further re excisions during the primary operation. It has a current sensitivity of 50-70% and specificity of 70-90%.

02 OBJECTIVE

Develop a convolutional neural network (CNN) which can match or surpass a surgeons review of intraoperative specimen mammograms to reduce re-excision rate by identifying areas of cancer/DCIS at margins.



03 PROGRESS

- 954 patient database with pre operative mammograms, intra operative mammograms and final pathology as the ground truth.
- Ethical approval complete.
- Safe haven(Dataloch) approval.
- Grant Funding received from the Breast Cancer Institute .
- Private sector(Bering Ltd) collaboration and Model training.

Breast Cancer Institute

04 NEXT STEPS

- Model testing in Safe Haven
- Shadow mode testing
- Three sites identified for larger dataset and external validation

TIME PERIOD	STUDY ACTIVITY
AUG 25 – SEPTEMBER 25	LITERATURE REVIEW
SEPT 25	ETHICS APPLICATIONS
SEPT 25 – JANUARY 25	SAFE HAVEN GOVERNENCE
DEC 25	BERING LTD TRIAL MODEL RUN
SEPT 25 – DEC 25	IMAGE/PATIENT DATABASE COLLECTION
FEB 26 – APRIL 26	CNN MODEL BUILDING
AUG 26	MODEL TESTING IN SAFE HAVEN AND RE TRAIN
SEPT 26	MULTI SITE DATA COLLECTION AND MODEL BUILDING

05 SECONDARY PROJECTS

1.Meta analysis and the effect of AI assisted screening mammograms on surgical workforce

2.Prediction of axillary response to NACT in breast cancer patients
-Multi site, international study. Funding and ethics approved. Data collection underway

3.SOP and PPI for teledermatology in NHS Tayside

4.Annonymisation in teledermatology: literature review and protocol

5. Artificial inetlligence in breast cancer: Patient's thought and perspectives

06 THANKS

In grateful memory of my fellowship supervisor Prof Colin Fleming

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