HSC Public Health Agency

Breast Screening

SCREENING MATTERS

Newsletter of the Northern Ireland Cancer Screening Programmes

Issue 23 Produced by QARC for Health Professionals in NI Cancer Screening Programmes Summer 2012

The Role of the Medical Physicist in the Breast Screening Programme

Dr. Adam Workman
Regional Medical Physicist (NI)

When you say the word Physicist people nowadays probably think of the characters in the TV comedy programme 'The Big Bang Theory'. Or perhaps they think of an Horizon programme they've seen where the Physicist is holed up underground with his massive particle accelerator or looking out into the universe with a huge telescope.

It's true that physicists study and explore the realms of the very big and the very small but they are also involved in areas closer to everyday life. It is probably not well known that the Health Service employs physicists, in this case they are known as Medical Physicists.

Medical Physicists are graduates in Physics or Physics related subjects. They undergo between 4 and 6 years in-post training before being state registered with Health Professions Council, at which point they are known as Clinical Scientists. Clinical Scientists are supported in their work by Clinical Technologists who also have a scientific background and training. The Northern Ireland Regional Medical Physics Service (NIRMPS) provides Medical Physics Services to the Breast Screening Programme in Northern Ireland.

X-ray imaging, as used in mammography for breast screening, involves the use of ionizing radiation. In the UK the use of ionising radiation in medicine is governed by legislation [1, 2]. The need for legislation acknowledges the risks associated with the hazard of radiation and the need to control its use to protect the patient. Even small amounts of ionizing radiation are thought to present a risk of later induction of cancer in the patient.

In x-ray imaging the quality of the image i.e. the ability to extract information from the image is linked to the amount of radiation used. Therefore there is a need to optimize the exposures to patients i.e. use sufficient radiation in order to get sufficient diagnostic information but to also limit the radiation dose and the risk to the patient. Normally in diagnostic radiology there is a benefit to the patient in that the imaging assists the diagnosis of an underlying condition for which they have clinical symptoms.

Therefore the benefit of the exposure (i.e. a diagnostic answer) outweighs the risk associated with the exposure (potential cancer induction in later life). However in screening programmes, such as breast screening, the women presenting have no clinical symptoms and the vast majority will not have breast cancer.

In this case there may be no benefit to the individual woman however the risk associated with the exposure will still exist. It is therefore additionally important that the risks to the screening population are minimised and the benefits maximised.

The Ionising Radiation (Medical Exposure) Regulations 2000 [1] require that a medical physics expert be available to advise on aspects such as optimisation of exposure, patient dosimetry, equipment selection, quality assurance and performance testing. A major role of the Medical Physicist is in ensuring that the exposures in screening mammography are optimised resulting in minimum risk and maximum benefit to the screened population.

From its inception it was recognised that in order for the Breast Screening Programme to be effective it was necessary to have quality assurance for all of the processes and stages in the programme. This includes quality assurance of the equipment used for breast screening. The breast screening programme has standards for equipment performance which include standards for image quality and breast dose [3]. The equipment quality assurance programme for the Breast screening programme in N. Ireland is operated by the NIRMPS.

Continued ….Page 2

Statistical data for quarter 3, Oct – Dec 2011

Uptake% 50-64

Eastern	66%
Northern	76%
Southern	74%
Western	76%

Region 71%
Minimum Standard 70%
Target 80%

Screen to assessment % within 3 weeks

Eastern	92%
Northern	95%
Southern	97%
Western	100%

Region 95%
Minimum Standard 90%
Target 100%

Round Length % within 36 months, 50-64

Eastern	25.9%
Northern	99.1%
Southern	99%
Western	94.8%

Region 64.6.%
Minimum Standard 90% within 36months
Target 100%

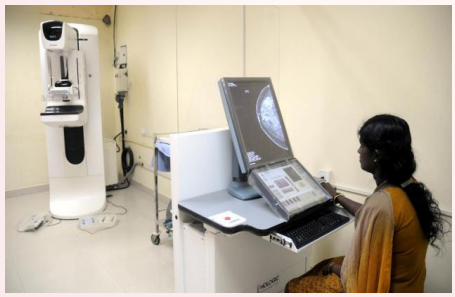
Screen to RR%

Eastern	97%
Northern	99%
Southern	97%
Western	99%

Region 98%
Minimum Standard >90%
Target 100%

The Role of the Medical Physicist in the Breast Screening Programme ….(cont.)

The Quality Assurance programme includes commissioning tests which are carried out on new equipment before it is first used clinically. The purpose of the test is to ensure that the equipment is performing suitably for clinical use and to collect performance data which will act as a baseline for further testing throughout the lifetime of the equipment. The equipment will then undergo routine performance testing (at six monthly intervals) to ensure that its performance is maintained.



Quality control of equipment involves making measurements of aspects of the equipment performance and ensuring these remain within certain tolerances. For mammography because of the need for high quality images, to detect possible early signs of breast cancer, and low radiation dose the equipment has to perform within quite tight tolerances. If parameters are outside tolerance it is necessary to highlight the need for remedial action to return performance to within the expected tolerance. The QA programme allows the detection of any deterioration in image quality that might not be apparent in clinical mammograms but would reduce diagnostic accuracy of the screening programme.

Medical Physics also provides support to local routine QA testing undertaken by Radiographers, assisting with protocols, reviewing results, auditing programmes and advising and trouble shooting when equipment performance problems are detected.

The Medical Physicist is involved in finding means to optimise exposures through advising on means to reduce exposure without reducing the diagnostic image quality. For instance where the same type of equipment exhibits different performance this is investigated to find out why this is the case and can lead to improved optimisation overall. In conjunction with Radiographers in the Breast Screening units the Medical Physics team monitors radiation doses to Breast Screening Programme clients by collecting and analysing dose data. The results are then reported back to the units along with any recommendations to further optimise doses.

NIRMPS staff are involved in research programmes which aim to improve the mammographic imaging process. An example of this is the OPTIMAM research programme [4, 5]. NIRMPS staff have also been involved in the development of performance standards for new technology imaging equipment [6].

Imaging technology for Breast Screening is continuing to develop and the Medical Physicist with their technical and scientific understanding of the equipment and the parameters affecting imaging performance are in a good position to advise on which technologies are best optimised to provide the best solution for breast imaging.

Dr Adam Workman, Regional Medical Physicist (NI)

References

[1] Ionising Radiation (Medical Exposures) Regulations 2000 (NI)
[2] Ionising Radiation Regulations 2000 (NI)
[3] Consolidated guidance on standards for the NHS Breast Screening Programme NHSBSP 60, (2005)
[4] http://www.nccpm.org/optimam/objectives.php
[5] Conversion of mammogaphic images to appear with the noise and sharpness characteristics of a different detector and x-ray system. Aliaster Mackenzie, David Dance, Adam Workman, Mary Yip and Kevin Wells and Kenneth Young. Med. Phys. **39**, 2721 (2012).
[6] Commissioning and routine testing of full field digital mammography systems NHSBSP Equipment Report 0604 (2009)

Cervical Screening

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HPV testing and cervical screening

On 5 July 2012, the Chief Medical Officer announced that high risk HPV testing would be introduced into the Northern Ireland Cervical Screening Programme from December 2012. This development comes as a result of successful pilots in England over recent years which have shown HPV testing to be a feasible, acceptable and cost effective addition to the programme in managing women with lost grade cervical abnormalities.

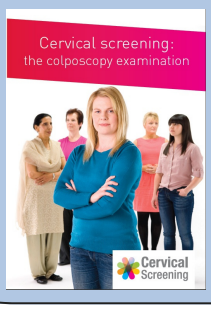
High risk HPV testing is recommended at two points within the screening pathway – as triage for those with low grade abnormalities on their smear result and as a test of cure following treatment.

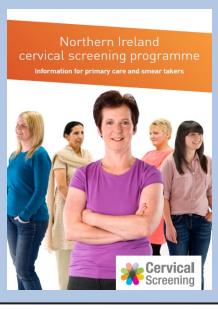
HPV testing will allow approximately a third of all women with borderline and low grade abnormalities and about 75% of those who have been treated for an abnormality to be returned to routine recall. It will significantly reduce the number of repeat and follow up smears with resulting benefits to women and reduced workload for smear takers and laboratories. Women with abnormal results will have a markedly shorter patient journey time to a definitive outcome.

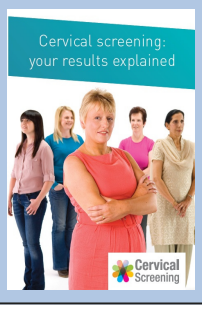
The Public Health Agency has been tasked with leading the implementation which will require:

- revisions to the existing patient information leaflets;
- distribution of information to all smear-takers;
- delivery of training to all smear-takers;
- agreement on new patient pathways within the programme;
- commissioning of one, or at most two, laboratories to undertake HPV testing in NI;
- changes to the IT systems which support the screening programme; and
- development of local plans to provide a short term increase in colposcopy capacity.

The introduction of HPV testing will be coordinated on a regional basis and further operational details, including arrangements for training, will be circulated to all smear takers in due course.







Cervical Screening

I had a hysterectomy; do I still need to do a smear?

Dr. Abdelmageed Abdelrahman
ST1 Obstetrics & Gynaecology, Antrim Area Hospital

In the United Kingdom one in 5 women are likely to have a hysterectomy by the age of 60.[1] Women who have had a hysterectomy with Cervical Intraepithelial Neoplasia (CIN) are potentially at risk of developing Vaginal Intraepithelial Neoplasia (VaIN) (incidence 1%)[2] and invasive vaginal disease. There is no clear evidence, however, that colposcopy increases the detection of disease on follow up.[3]

According to the National Health Service Cervical Screening Programme (NHSCSP) women who have undergone hysterectomy are no longer eligible for recall within the programme as they have no cervix. Their vault cytology following treatment of CIN must therefore be managed outside the programme. The responsibility for implementing these follow up policies will rest with the gynaecologist and will be informed by the local lead colposcopist. A gynaecologist discharging a patient requiring further vault cytology should ensure that the GP receives specific written guidance for follow up. The clinician in charge (gynaecologist or GP) will be responsible for failsafe mechanisms for this small group of women. It is recommended that high risk groups, such as cases of incomplete excision, will be dealt with at the colposcopy clinic up to the age of 65 years or until 10 years after surgery, whichever is later.[3]

Below is a summary of follow up required:

Hysterectomy and no past history of CIN

Histology/Pre treatment smear history	Follow up
Woman *on routine recall*	No vaginal vault cytology
Woman *not on routine recall*	Vaginal vault cytology 6 months after hysterectomy

Hysterectomy & past history of CIN

Histology/Pre treatment smear history	Follow up
Complete excision of CIN	Vaginal vault cytology 6 & 18 months after hysterectomy
Incomplete or uncertain excision of CIN *CIN 1* *CIN 2/3*	Follow up as if the cervix is still in situ & depends on CIN grade: Vault cytology at 6, 12 and 24 months Vault cytology at 6 and 12 months followed by nine annual vault cytology samples (whichever is later)

Women who undergo subtotal hysterectomy will still have their cervix in situ, therefore must remain within the NHSCSP. Women who have a *radical trachelectomy*, as part of conservative management of cervical cancer, should remain under the care and guidance of their gynaecologist / gynaecological oncologist. Follow up is recommended with colposcopy and cytology.

Since the aetiological relationship between the high risk oncotypes of Human Papillomavirus (HPV) and cervical cancer means that the presence of high risk HPV in the cervix increases risk of CIN. Its absence implies almost no risk at that time. So HPV testing can be clinically helpful in predicting risk of treatment failure i.e. test of cure. [4] Plans for introduction of HPV testing are currently being reviewed in Northern Ireland. It will become available in future and will be recommended when further guidance is published.

References

1. Clarke A, Black N, Rowe P, Mott S, Howle K. Indications for and outcome of total abdominal hysterectomy for benign disease: a prospective cohort study. *Br J Obstet Gynecol, 1995,* 102: 611–620
2. Gemmell J, Holmes DM, Duncan ID. How frequently need vaginal smears be taken after hysterectomy for cervical intraepithelial neoplasia? *Br J Obstet Gynaecol*, 1990, 97: 58-61.
3. National Health Service Cervical Screening Programme (NHSCSP). Colposcopy and Programme Management. Publication No 20. May 2010. Section 9.6 page 41.
4. The British Society for Colposcopy and Cervical Pathology. Accessed online http://www.bsccp.org.uk/index.asp?PageID=166. Date accessed 10/03/12.

If you would like to submit a news item, or would like to publish the results of an audit in **Screening Matters,** please contact Ken McInnes on 02890 311611 or write to Public Health Agency QARC, Ormeau Baths Office, 18 Ormeau Avenue, Belfast BT2 8HS. For further information and back issues, please visit our website at: www.cancerscreening.hscni.net.

Promoting Bowel screening at the Balmoral Show

The PHA hosted a stand at the Balmoral Show in May to promote the Bowel Cancer Screening Programme. This proved very successful in encouraging the general public to participate in screening and complete their test kit. The event also provided an opportunity for the public to have any queries answered regarding the screening process.

Audit of individuals ceased from further recall

Automatic ceasing from further recall occurs when a person has died, has emigrated or has moved away from his/her last known address and can no longer be traced.

However, ceasing can also be carried out manually by the call/recall office. There are only two circumstances under which an individual should be permanently ceased by the call/recall office:

No functioning large bowel

Individuals who have undergone a total removal of the colon and rectum (panproctocolectomy) and those who have had a total colectomy but retain a non-functioning rectal stump are not suitable for screening and can be ceased from call/recall.

Confirmation that they have no functioning large bowel is sought from their GP prior to ceasing taking place. Those who retain part of a functioning bowel (e.g. hemicolectomy) or those who have had a temporary bowel bypass and are waiting for restorative surgery should remain within the screening programme, with the current screening episode suspended if appropriate.

Informed dissent

Participation in screening is an individual's personal choice. Permanent ceasing on the grounds of informed dissent is only carried out on signed written authority from the individual, confirming that they have been fully informed and facilitated to make that decision.

When the programme was launched, some individuals were ceased on the basis that they had inflammatory bowel disease and were under regular colonoscopy surveillance. National guidance now suggests that such individuals should be temporarily suspended from their current screening episode, rather than permanently ceased to ensure they are not lost to follow up.

The QARC office is now auditing all people who have been permanently ceased within the bowel cancer screening programme to date, to ensure that the appropriate action was taken. This may result in a small number of individuals being returned to recall status. The screening programme will write to any individuals affected by the outcome of the audit, explaining why they may receive future invites to participate in screening and offering them the opportunity to contact the helpline if they wish to discuss.

Full guidance on ceasing and suspending individuals from the screening programme can be found on the publications section of our website www.cancerscreening.hscni.net

GP confirmation of patient medical history.

The bowel cancer screening programme will sometimes require confirmation from GPs on a person's medical history. There are certain circumstances when an individual can be suspended from a screening round, for example if they have had a recent colonoscopy or if they are in an alternative surveillance programme.

Upon receiving a test kit participants patients can contact the screening programme call recall office, based at the Business Services Organisation, to query if they should be exempt from screening. The call recall office will send an Information Request to the relevant GP Practice. It is imperative that the requested information is completed accurately and returned quickly. This may prevent your patient from having an unnecessary hospital appointment.

BOWEL CANCER SCREENING

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Bowel Cancer Screening Programme Roll-out

The Bowel Cancer Screening Programme is now offering eligible participants in all five Health and Social Care Trusts across Northern Ireland the opportunity to participate in bowel screening using a FOBt (Feacal Occult Blood test) home test kit. The Belfast HSC Trust commenced participation in November 2011 and the Southern HSC Trust in January 2012. Roll out will be complete across both Trusts by end October and end December 2013 respectively. Invitations are currently being issued to the eligible population.

The Health Minister recently announced that the upper age limit of participants will be raised to 71 from April 2012 with plans to extend to 74 by 2015. This means the eligible age range for participants is now 60 to 71. The first invitations sent to 70 and 71 year olds were issued at the beginning of April and will be sent over a nine month period ending in December 2012. Those persons currently 71, born after 2nd April will receive an invitation before their 72nd birthday.

According to the NI Cancer Registry, bowel cancer is the second most common cancer in Northern Ireland and claims the lives of 400 local people each year. With screening this number can decrease if cancer is detected at a very early stage where there is a 90% successful treatment rate. So far the Bowel Screening Programme has uncovered over 100 cases of screen detected cancer, often in participants not exhibiting any symptoms.

The mass media campaign, to promote the Bowel Cancer Screening Programme and encourage those who have received invitations to participate, was launched by the Health Minister Edwin Poots at the beginning of February 2012. The Health Minister was joined by Dr Janet Little, Assistant Director of Service Development and Screening, PHA, as well as two members of the public Mr William Smyth and Mrs Margaret Fenton, both of whom had participated in the Bowel Screening Programme and were diagnosed with screen detected cancer.

Mrs Fenton stated "The doctor told me my cancer was caught so early on that I would only be noticing signs and symptoms of something being wrong six months or a year later. I feel very lucky that my cancer was detected because I did this simple test. I would encourage everyone to take the test when it comes through the post as it could save your life – it saved mine."

The campaign, which ran until the end of March, included television and radio advertisements as well as washroom and bus panels aiming to increase awareness and participation in bowel screening.

SSP Susan Hughes, QA Lead for the Bowel Cancer Screening Programme

Susan Hughes has been employed by the Northern HSC Trust as a Specialist Screening Practitioner (SSP) in the Bowel Cancer Screening Programme (BCSP) since its initial roll-out in April 2010.

In October 2011 Susan joined the BCSP Quality Assurance (QA) team as the SSP QA Lead. Having been part of the screening programme for almost 2 years, Susan brings experience to the role to help ensure a high quality service to participants across Northern Ireland. Susan thoroughly enjoys her role as an SSP and now working as part of the BCSP QA team.

Quality assurance is a fundamental part of all cancer screening programmes. As SSP QA Lead, Susan will work collaboratively and provide specialist advice to the QARC on all aspects of professional quality assurance. Susan will be a source of advice and assistance to SSPs working in the screening units across Northern Ireland.

ACTIVITY UPDATE
APRIL 2010 - end of MARCH 2012

Invites issued	130,809
Completed Kits	61,942
Screen detected cancers	111