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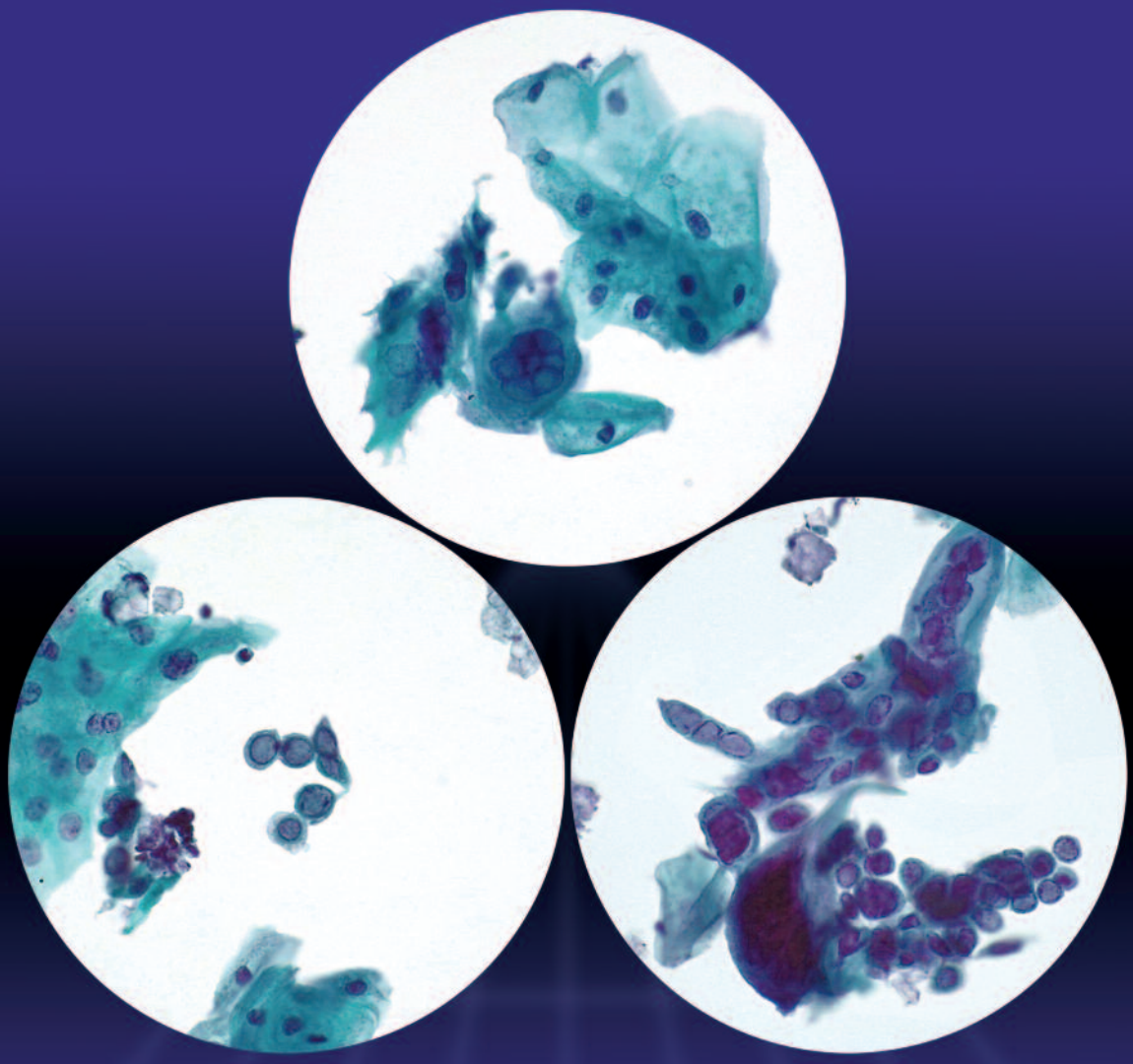

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please see inside back cover for co-opted members

Editorial

Sharon Roberts-Gant

Yesterday was the first day of the IBMS congress which I attended as the BAC AGM was scheduled for lunchtime. The impact of the changes in cervical screening was sorely felt with the smallest gathering of cytologists I have ever witnessed at a national meeting; for me it was a very sad day. The next few months are going to be very difficult with the changes sweeping through England, to be followed shortly after by Scotland. Wales have already made the move to HPV primary screening and many working in the service have already had to make difficult choices and changes. There is an update on HPV around the United Kingdom in this edition of SCAN, see page 12.

We also have articles from across the globe with updates in Cervical Screening from New Zealand and Moldova as well as reports from the European Congress of Cytology and the International Congress of Cytology. There are educational articles with part two of the world tour of recently published reporting systems in cytopathology and a nice educational case to test your skills.

For those of you moving away from Cytology I wish you well in your future, whether it be retirement or to different careers, some of you will have spent many years screening cervical cytology saving many lives and whilst the women may not know who to thank we do - so thank you.

Sharon

Editor: Sharon Roberts-Gant

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INFORMATION FOR CONTRIBUTORS

Articles for inclusion in SCAN can be emailed to the editor if less than 1MB in size or supplied on CD/DVD or memory stick. Text should be in a standard text format such as a Word document or Rich Text Format (rtf file). Please supply images as separate files in tiff or high quality jpeg files at a resolution of not less than 300 dpi (600 dpi if the image includes text). 35mm slides and other hard copy can be supplied for scanning if no electronic version is available. Graphs are acceptable in Excel format.

If you are unable to supply files in the above formats or would like advice on preparing your files, please contact Robin Roberts-Gant on 01865 222746 or email: robin.roberts-gant@ndcls.ox.ac.uk

BAC British Association for Cytopathology

President's Piece

Paul Cross

I remember distinctly when I was a trainee pathologist, in the 1980s, being told that nothing really changes in cytology. Dial forward some 40 years and how times have changed. It feels almost every week there is yet another lab change or configuration, changes in staff roles or numbers, and in relevant guidance. It is difficult to keep track on what is actually happening. One major role of the BAC in the last few years is in letting members know what is going on. This is especially relevant with the changes occurring to the CSPs. This is a role of any professional body, but given the rate and number of changes we can act as a major conduit of news in all of this. It is a sad reflection I feel, certainly in England, that often we are letting people know decisions made about them as individuals, labs or their service rather than hearing the news from the actual bodies making these decisions themselves. This is highlighted with NHSE and PHE and their communications about CSP changes. Official communication routes are all well and good as long as they work. We have been making this point long and hard. We are often the messenger, not the message writer, and are relaying what we can.

This edition has an update from across the United Kingdom on the implementation of pHPV. We last did one in the April 2017 edition of SCAN. So what has changed? We now know the number of laboratories will be 8 in England and 2 in Scotland. The move from the current numbers down to this is taking longer than had been anticipated. Issues with the procurement process, reconfiguration and IT have loomed large. The reduction of laboratory numbers and reduction in cytology workload means that many experienced and knowledgeable cytology staff will be lost. Some will be retained in cytology, some will move to other roles in pathology or within the health service in general, but many others it would seem will leave all together. This is difficult for the individuals themselves, but also for cytology as a whole. We should not allow such a dedicated, high quality and well-trained workforce to be allowed to disappear. All efforts should be done to retain as many as we can nationally. Their skills, if they cannot be used within cervical screening, can be used elsewhere. Many colleagues, and BAC members, will be facing major changes in their lives on the back of these changes.

When I began in pathology, there were over 200 laboratories involved in cervical cytology in England, in 2004 there were 140 and by the end of this year there will be 8 only. This is an incredible change with laboratory cytology services. We have gone from conventional Pap smears to LBC cytology and then to the use of HPV testing. In diagnostic cytology we have seen vast changes in how cytology is used, with perhaps the best example being in respiratory medicine, and the variety of cytology and use of molecular testing to aid treatment option selections. All these changes have required ongoing training and re-education. It shows that all of us in pathology must be able to adapt and change. Standing still is not an option. I could never have envisaged the type of service we have now, and the ability to morph is essential. We all need to be able to be flexible and change. If we cannot then cytology cannot play the pivotal role it does, and should, play in clinical medicine as we cannot offer the service that is needed. The only constant is change.

The BAC will I am sure need to reflect in the coming years on its role and aims. The changes outlined above will affect cytology across the UK and also in our membership. We must, as said above, adapt and change. Whatever the outcomes of all this, we will continue to serve our members, and maintain our professional and educational role. We are already organizing several meetings for 2020, and details of these will be shared when we have more detail. Keep an eye out for further information on these.

Chairman's Column

Alison Cropper

The times they are a-changin' (Bob Dylan, 1964) …

Before starting to put pen to paper (or fingers to keyboard to be more precise) I pondered for some while about what I might write in July that would still have relevance in October when this edition of SCAN is due to hit your letter boxes. Despite what some would seem to think, neither the BAC nor I have a crystal ball and we cannot know what the next few months will bring for the many cytologists affected by the recent HPV primary screening procurement process, but I know that as you are reading this many of you will be in the process of winding down cervical screening laboratories that you have devoted many years of loyal service to and are devastated to find yourselves in that situation.

As we all now know, the 9 'Lots' were awarded to 8 provider laboratories in April/May this year and mobilisation is now underway – more detail can be found in my article elsewhere in this copy. My own laboratory is one of the 8 awarded the contracts, but please do note that I do not use the term 'winners'. Whilst our staff know that there will be no requirement to change their place of work they are worried and unsettled about the changes that may come post mobilisation should organisational change be required, but this is an unknown quantity and will continue to be so until the date of mobilisation when we will know who will be transferring in from the incumbent providers. And yet our fears are minimal compared the staff in the incumbent providers, many of whom have worked in those departments for many years and see their workplaces and colleagues as their second homes and families. Of course, this situation is being mirrored across the country and in Scotland too, where mobilisation has a similar implementation timeline to England, and yet is being rolled out in both in a very different way to how it was done in Wales – again see the 4 nations article for more details.

I have close friends and colleagues who are having to make life changing decisions right now and I know how difficult and traumatic this is for them; it was never going to be easy but reality has now hit, and the change that we have known for several years was coming is finally here. The landscape of cervical cytology in the UK is going to look very different by this time next year.

But change is the only constant in life. And did you know that the Chinese word for change is comprised of two symbols—one for *danger* and another for *opportunity*? How you perceive and adapt to change makes all the difference. You can enthusiastically embrace it, try to deny it or stubbornly resist. But as the Chinese say, in the end, most of life's dangerous opportunities proceed with or without your consent. Quite what impact the current changes in cytology will have on the BAC are yet to be realised and I am sure our membership profile will be quite different in the coming years, with changing expectations of their professional body. How sustainable we will be is going to be entirely dependent upon whether we can continue to meet the needs of our members but we will strive to do so, I can assure you of that. There may well be consequential changes to our executive, some of whom are going through some very challenging times both personally and professionally right now but have continued to work dedicatedly for the BAC, and I thank them for that.

Members of the executive have been working tirelessly behind the scenes with national HPV mobilisation planning, and it is so gratifying and encouraging to see that BAC are now included, along with the IBMS and RCPath, in all key stakeholder meetings – something we have worked hard to achieve over the years so it is great to feel that we are now considered as equals with other professional bodies representing cytologists.

BAC are working closely with our colleagues in the other professional bodies, not only on all matters HPV, but also with educational events and other projects. By the time you read this summer will be over, we will be well into autumn and BAC will have had our first joint venture with the IBMS in providing the Cytopathology programme at Congress – an exciting prospect and one which I am sure will be repeated in years to come.

Joint working is certainly something that BAC are keen to do, to make the most of opportunities out there for our members. Please keep supporting BAC – we will only exist whilst there is a membership that wants / needs us to!

Let's hope a new decade will bring some stability to the cytology workforce in the UK and we can once again focus on our core business - to encourage the science and art of Cytopathology by encouraging higher standards in Cytopathology for the benefit of the public, and to encourage research in Cytopathology and related fields and the publication of useful results.

Paris, Milan, Yokohama… A World Tour of Recently Published Reporting Systems in Cytopathology: Part 2

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Introduction

Following on from the previous issue of SCAN where we presented an educational article on 'The Paris System for Reporting Urinary Cytology', we introduce another recently published diagnostic reporting system in the field of cytopathology. In this issue, we continue our world tour to Italy, where we take a closer look at 'The Milan System for Reporting Salivary Gland Cytopathology (MSRSGC)'.

The Milan System for Reporting Salivary Gland Cytopathology

Under the sponsorship of the American Society of Cytopathology (ASC) and the International Academy of Cytology (IAC), the MSRSGC was developed through the collective efforts of an international group of experts that consisted of cytopathologists, surgical pathologists, molecular pathologists and head and neck surgeons.[1,2] As with 'The Paris System for Reporting Urinary Cytology', the MSRSGC is an evidence-based system and provides a uniform and practical scheme for reporting fine needle aspiration (FNA) specimens of salivary gland lesions, with the aim of improving communication between pathologists and clinicians and, ultimately, ensuring a high standard of patient care.

The MSRSGC consists of 6 diagnostic tiers: 1) 'Non-Diagnostic', 2) 'Non-Neoplastic', 3) 'Atypia of Undetermined Significance (AUS)', 4) 'Neoplasm (subdivided into 'Benign' and 'Salivary Gland Neoplasm of Uncertain Malignant Potential'), 5) 'Suspicious for Malignancy', and 6) 'Malignant' (Table 1).[3] Each of these diagnostic categories will be reviewed in turn, with a summary of the key points. It should be noted that the reporting system focuses on risk stratification, rather than solely on the provision of a specific diagnosis; to this end, each diagnostic category is correlated with a risk of malignancy (ROM) and recommended clinical management strategies.[3,4,5]

Non-diagnostic

The 'Non-Diagnostic' category should be used when the entire FNA material has been processed and examined, and yet there is insufficient quantitative and/or qualitative cellular material to make a cytologic diagnosis.[6] Currently, a quantitative adequacy criterion (i.e. an absolute number of cells to define adequacy) for salivary gland FNA specimens has not been validated in studies; as such, it is recommended that a minimum of 60 lesional cells may be used as a measure of adequacy until further data is available.[2]

I	Non-diagnostic
II	Non-Neoplastic
III	Atypia of Undetermined Significance (AUS)
IV	Neoplasm A. Benign B. Salivary Gland Neoplasm of Uncertain Malignant Potential (SUMP)
V	Suspicious for Malignancy
VI	Malignant

Table 1. Diagnostic categories of The Milan System for Reporting Salivary Gland Cytopathology

Salivary gland FNA specimens that fall into the 'Non-Diagnostic' category include[6]:

- Absent cells or less than 60 lesional cells.
- Poorly prepared slides with artefacts (e.g. air-drying, obscuring blood and poor staining).
- Normal salivary gland elements in the setting of a clinically or radiologically defined mass.
- Non-mucinous cyst fluid without epithelial cells (should be designated 'Non-Diagnostic, cystic fluid only').

However, there are certain exceptions, which are summarised below[6]:

- Any specimen with significant cytologic atypia should always be considered adequate and reported as 'AUS'.

- Mucinous cyst fluid without epithelial cells should be categorised as 'AUS'.
- Inflammatory cells in large numbers in the absence of epithelial cells can be interpreted as adequate.
- In the absence of neoplastic cells, the presence of matrix material suggestive of a neoplasm should not be classified as 'Non-Diagnostic'.

If a salivary gland FNA specimen is categorised as 'Non-Diagnostic', a repeat FNA is recommended, preferably with the use of ultrasound guidance (if not originally used) and rapid on-site evaluation (ROSE).[6]

Non-Neoplastic

The 'Non-Neoplastic' category is used when the specimen lacks cytomorphological evidence of a neoplastic process and consists of benign acinar and/or ductal epithelial cells, with or without inflammatory, metaplastic and reactive changes.[7] Entities belonging to this category include acute sialadenitis, chronic sialadenitis (including IgG4-related disease), granulomatous sialadenitis, sialolithiasis, benign lymphoepithelial lesion/ lymphoepithelial sialadenitis (LESA) and reactive lymph node hyperplasia (e.g. sampling of reactive intra- or peri-parotid lymph nodes).[7] Correlation with clinical and radiological findings is crucial to ensure that the FNA is representative of the salivary gland lesion and to minimise false-negative results. The ROM for this category is approximately 10% (ranges from 0 to 20%).[4,8]

Salivary gland FNA specimens designated as 'Non-Neoplastic' should be followed up clinically and/or radiologically. Any change in either the clinical or radiological features should be an indication for a repeat FNA, given the risk of sampling error in this subset of salivary gland lesions.[7]

Atypia of Undetermined Significance (AUS)

One of the primary indications for performing a salivary gland FNA is to determine whether the salivary gland lesion represents a non-neoplastic or neoplastic process, as this has implications for clinical management (e.g. non-neoplastic salivary gland lesions are managed conservatively, while neoplastic ones are usually managed surgically).4 However, in reality, confident designation as non-neoplastic or neoplastic may not always be possible due to technical factors (e.g. poor sampling with scant cellularity or poor slide preparation with artefacts) or because of the inherent characteristics of the lesion (e.g. if a lesion is cystic, fibrotic or necrotic). As a result, the 'AUS' category can be used for specimens that are indefinite for a neoplasm; in other words, when the cytomorphological features (qualitative or quantitative) do not definitively fall into the 'Non-Neoplastic' or 'Neoplasm' categories of the MSRSGC.[9] Furthermore, there must be atypical cytomorphological features that excludes classification as 'Non-Diagnostic'.[9] In general, the 'AUS' category favours a benign process, but where a neoplasm cannot be entirely excluded after examination of all the cellular material. Evidence suggests that the majority of cases in this category will represent reactive atypia or a poorly sampled neoplasm.[9]

The 'AUS' category may be suitable in the following scenarios9:

- Reactive and reparative atypia indefinite for a neoplasm.
- Squamous, oncocytic or other metaplastic changes indefinite for a neoplasm.
- Low cellularity specimens that are suggestive, but not diagnostic, of a neoplasm.
- Specimens with preparation artefacts hampering distinction between a non-neoplastic and neoplastic process.
- Mucinous cystic lesions with absent or very scant epithelial cells (e.g. differential diagnosis between a mucus retention cyst or a low-grade mucoepidermoid carcinoma).
- Salivary gland lymph nodes or lymphoid lesions that are indefinite for a lymphoproliferative disorder.

The use of the 'AUS' category should be low (< 10% of all salivary gland FNA specimens), with every attempt made to classify specimens into a more specific category wherever possible. The ROM for this category is estimated to be 20%, although this is not a well-defined figure given the lack of data in the current literature pertaining to salivary gland lesions classified as 'AUS'.[9]
Careful clinical and radiological correlation is recommended for specimens categorised as 'AUS'. Depending on the overall risk assessment, a repeat FNA, biopsy or surgical excision may be required.9 In salivary gland FNA specimens containing atypical lymphoid cells, flow cytometry and immunohistochemical staining to rule out a lymphoproliferative disorder should be considered.[9]

Neoplasm – Benign

The 'Neoplasm – Benign' category is reserved for clear cut benign neoplasms diagnosed based on established cytologic criteria of a specific benign epithelial or mesenchymal neoplasm of the salivary gland.[10] The most common benign salivary gland neoplasms of epithelial origin include pleomorphic adenoma and Warthin tumour, both of which can be diagnosed by FNA with high specificity (> 98%).[11]

Examples of benign salivary gland neoplasms of mesenchymal origin include lipoma, schwannoma, lymphangioma and haemangioma.[10]

For cases classified as 'Neoplasm – Benign', cross-sectional imaging should be performed to assess the extent of the tumour prior to proceeding to complete surgical excision with facial nerve preservation. For patients who are unsuitable for surgery, clinical follow-up is an alternative.[10]

Neoplasm – Salivary Gland Neoplasm of Uncertain Malignant Potential (SUMP)

The 'Neoplasm – SUMP' category is reserved for specimens that have cytologic features diagnostic of a neoplasm, but where distinction between a benign and malignant neoplasm cannot be made.[10] Many of the cases in this category will include cellular benign neoplasms, neoplasms with atypical features and low-grade carcinomas.[10] MSRSGC recommends further subcategorisation of a specimen designated into the 'Neoplasm – SUMP' category as 'cellular basaloid neoplasm' (i.e. specimens characterised by a predominant population of cells with scant cytoplasm that confers an immature – 'basaloid' – cytomorphology), 'cellular oncocytic/oncocytoid neoplasm' (i.e. specimens characterised by a predominant population of cells with moderate amounts of oncocytic granular cytoplasm) or 'cellular neoplasm with clear cell features' (specimens characterised by a predominant population of cells with clear or vacuolated cytoplasm).[10]

Surgical excision is indicated for cases categorised as 'Neoplasm – SUMP'. Not only should pre-operative cross-sectional imaging be performed to evaluate the extent of the tumour, but intraoperative frozen section may be used to assess margin status and histologically classify the tumour as this may influence the extent of surgery, including the need for neck dissection.[10]

Suspicious for Malignancy

The 'Suspicious for Malignancy' category is used for cases that show a higher degree of atypia than the 'AUS' and 'Neoplasm – SUMP' categories; specifically, where the cytologic features are highly suggestive of, but not unequivocal for malignancy.[12] The purpose of separating this category from the 'Malignant' category is to ensure that the positive predictive value of the 'Malignant' category remains high. It is advised that an attempt should be made to further subcategorise the cases classified as 'Suspicious for Malignancy' as suspicious for a primary salivary gland malignancy, metastasis or lymphoma.[4,11] The majority of the specimens in the 'Suspicious for Malignancy' category will be suboptimal samples of a high-grade malignancy.[12]

The 'Suspicious for Malignancy' category may be used in the following scenarios[12]:

- Markedly atypical cells in a background obscured by blood or inflammation, or where there is poor cellular preservation or poor smear preparation which limits cytomorphological assessment.
- A sparsely cellular sample with limited cytologic features of a specific malignant neoplasm.
- Markedly atypical cells, but admixed with features of a benign salivary gland lesion.
- Paucicellular sample with atypical cytologic features suggestive of a neuroendocrine neoplasm.
- Samples suspicious for lymphoma, but lack sufficient material for the performance of ancillary studies (immunohistochemical staining or flow cytometry) for diagnostic confirmation.

It is important to note that, although the specimens in this category are highly suggestive of a malignant neoplasm with a ROM approaching 60%[2], the 'Suspicious for Malignancy' category should not be used as a basis for radical surgery, chemotherapy or radiotherapy.[12] In such cases, a further procedure may be needed to obtain additional material for ancillary studies to facilitate a more specific diagnosis.

Malignant

The 'Malignant' category is used for specimens that have cytomorphological features, either alone or in combination with ancillary studies, that are diagnostic of malignancy.[13] Furthermore, an attempt should be made to provide an indication of the specific tumour type and, in cases of malignant primary salivary gland neoplasms, the grade of the tumour (i.e. low grade or high grade).[13]

In addition to malignant primary salivary gland neoplasms, secondary (metastatic) tumours (with cutaneous squamous cell carcinoma being the most commonly diagnosed secondary tumour of the parotid gland, followed by melanoma) and haematolymphoid malignancies (with extranodal marginal zone lymphoma of mucosa-associated lymphoid tissue being the most common salivary gland lymphoma) are also included in the 'Malignant' category.[13]

The clinical management strategy for specimens in this category will be determined by the type of malignancy diagnosed. For malignant primary salivary gland tumours, the grade will determine

the extent of surgery, including the need for a neck dissection or the potential need to sacrifice a large nerve.[13]

Conclusion

Fine needle aspiration represents an important first-line diagnostic tool in the pre-operative assessment of salivary gland lesions. Reporting of salivary gland cytopathology is not without its challenges, but the MSRSGC provides a logical and pragmatic reporting scheme with the tiered diagnostic categories helping to standardise classification and facilitate risk stratification of these diverse and heterogeneous lesions. We highly recommend readers to refer to the published book, which includes high-quality photomicrographs and detailed explanatory notes, as well as additional chapters dedicated to the application of ancillary studies, clinical management and histological considerations.[3] It is hoped that as further data accumulates to validate the MSRSGC, it will gain international acceptance as a tool to improve reporting standards and consistency in this complex diagnostic area.

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Cervical Screening in New Zealand: an update

Margaret Sage, Clinical Lead, Pathology NSCP

Tēnā koutou! Greetings from Aotearoa New Zealand. Down here in the South Pacific we are about as far away as you can get from the United Kingdom (UK) but there are many similarities in our cervical screening programmes, and we face similar challenges.

Some history

The National Cervical Screening Programme (NCSP) was established in New Zealand in 1990, after the first of two very public crises in cervical cancer prevention. The Cartwright Inquiry[1] in 1987-88 investigated a clinical trial in Auckland where women with carcinoma in situ (CIN3) were being followed rather than treated, without their consent. Some developed cervical cancer and a number of women died. The Inquiry had a major impact on informed consent in medical practice and was the impetus for establishing the NCSP. Once established, the number of women enrolled increased rapidly. Overseas-trained cytologists were recruited to assist with the increase in workload. In one regional city, increasing workloads outstripped screening and reporting resources. Quality suffered and an unacceptable number of screened women developed (or died from) cervical cancer. The Ministerial Inquiry into the Under-reporting of Cervical Smear Abnormalities in the Gisborne Region[2] published in April 2001, promoted the Ministry of Health to greatly improve Quality Assurance systems and standards. The first NCSP National Policy and Quality Standards were published in October 2000. A national training programme in cervical cytology commenced in 2005 to provide ongoing training for cytopathologists and cytoscreeners reporting cervical cytology.

Demography

New Zealand has been populated by successive periods of migration and is becoming increasingly multicultural. In the 2017 census, 14.9% of the population self-identified as Māori, 74% as European/Pakeha, 11.8% as Asian and 7.4% as Polynesian. Our indigenous Māori population arrived from Polynesia around 1250 and 1300AD followed about 500 years later by an influx of Europeans, predominantly from the UK. The founding document of our nation is the Treaty of

Waitangi (Te Tiriti o Waitangi), signed in 1840 between representatives of Queen Victoria and Māori Chiefs. Under the Treaty, the Crown undertook to protect the Māori people and so today, the Ministry of Health has a fundamental obligation to address health disparities between Māori and European (Pakeha) people. Reducing the high incidence and mortality rates of cervical cancer for Māori women relative to Pakeha women is a high priority for the NCSP.

The NCSP

The NCSP in the Ministry of Health is part of the National Screening Unit. There are two NCSP Clinical Leads, for Pathology and Colposcopy. Laboratories reporting cervical cytology must hold a contract with the NCSP and comply with the NCSP National Policy and Quality Standards, which set out standards of practice across the screening pathway. Annual reports provide invasive cervical cancer incidence and mortality data. Six-monthly Monitoring Reports[3] (provided by the Cancer Council of New South Wales in Australia) detail coverage, population-based screening patterns and laboratory and colposcopy performance against indicators and targets. Three-year screening coverage (hysterectomy-adjusted) for women 25-69 years of age is currently about 74% but is not consistently high across different ages or ethnicities, falling well short of the 80% coverage target for many groups. The following graphs provide coverage data during 2016-18 for the total population by age and by ethnicity. Low coverage among our three priority groups i.e. Māori, Pacific and Asian women, and low and declining coverage for all women under 35 years of age, are areas of concern.

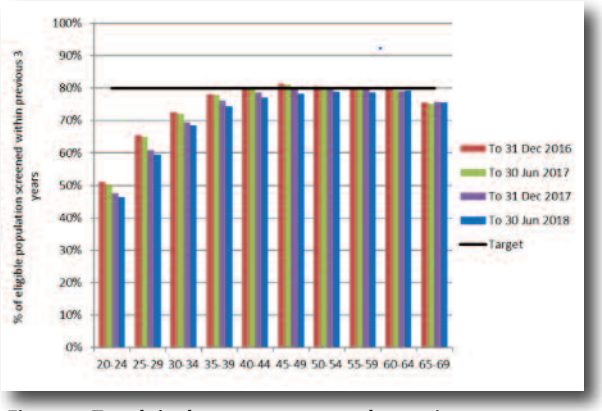

Figure 1- Trends in three-year coverage by age (women screened in the previous three years, as a proportion of hysterectomy-adjusted female population)

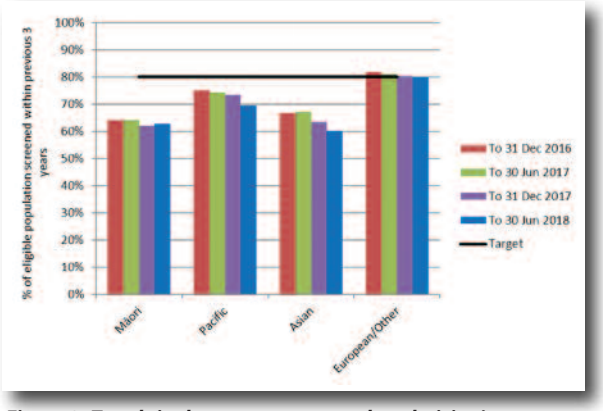

Figure 2- Trends in three-year coverage by ethnicity (women aged 25–69 years screened in the previous three years, as a proportion of hysterectomy-adjusted female population)

Cervical screening

New Zealand currently has a cytology-based cervical screening programme. Women have two cervical cytology samples 12 months apart when entering screening for the first time and move to a three-yearly screening interval if both results are negative. The recommended age range for screening is 20-69 years but the recommended age to commence screening will rise to 25 years of age later in 2019.

Six laboratories, District Health Board Public Hospital laboratories and commercially owned private laboratories, report about 440,000 liquid-based cytology (LBC) samples annually for a total population (all genders) of just under 5 million. We have been using 100% LBC since 2009, with three laboratories reporting using ThinPrep and three using SurePath. Approval for introducing new technology must be obtained from the NCSP, but the choice of specific technologies such as LBC type, use of imagers and HPV testing systems, resides with individual laboratories. All New Zealand laboratories use imaging systems, either the ThinPrep Imager or the FocalPoint GS Imaging System. These six laboratories have contracts with the NCSP to provide cervical cytology and hrHPV testing services. hrHPV testing must be performed at the same laboratory site where the cytology from the same sample is processed and reported. All laboratories reporting cervical cytology also report cervical histopathology and an additional eight laboratories report cervical histopathology (only) for the NCSP.

National registers

A national NCSP Register holds results for cervical/vaginal cytology, hrHPV tests, cervical/vaginal histopathology (SNOMED coded) and colposcopy records for all women enrolled in the NCSP in New Zealand. HPV immunisation records are held on a separate immunisation register. The New Zealand Cancer Registry holds the official records of invasive and "in-situ" cervical cancers (CIN3).

Laboratory practice

The Bethesda System for reporting cervical cytology has been used since the commencement of the NCSP in New Zealand. All six laboratories reporting cervical cytology and hrHPV testing are audited annually at an on-site visit by NCSP staff to ensure compliance with the NCSP National Policy and Quality Standards (NPQS)[4]. Section 5 of the Standards relates to laboratory practice and specifies staffing, qualification and ongoing education requirements for pathologists and scientific staff (cytoscreeners). Each laboratory site must report a minimum of 15,000 LBC samples per annum. Cytopathologists must each report a minimum of 500 LBC cervical cases per annum. The maximum screening workload for any cytoscreener is 70 cases manually screened in one day, with two Field of View reviews after imaging counted as equivalent to one manually screened case, for calculation of workloads. Each cytoscreener must primary screen a minimum of 3000 cervical cytology samples each year. Senior screeners may include up to 1200 full secondary screen cases. Histology reporting requirements, turnaround time targets, Quality Assurance and HPV testing requirements are also specified. Clinical management guidelines[5] have been in place since the inception of the NCSP, and cover referral to colposcopy as well as post-colposcopy management.

Testing for hrHPV following cytology was introduced in 2009 for use in three clinical situations. Three HPV test technologies are used currently: Roche Cobas 4800, Abbott Realtime and BD Onclarity. The NCSP funds hrHPV testing in

three situations:

1. As a triage test after low-grade cytology (ASC-US or LSIL) in women 30+ years of age who have not had an abnormal cytology or histology report in the previous 5 years.
2. As a test of cure. Cytology and hrHPV testing on two separate occasions 12 months apart with all four results negative, is required to successfully complete a test of cure.
3. Specialist-ordered HPV testing for women with discordant results. In practice, if a specialist colposcopist or gynaecologic oncologist orders hrHPV testing, this will be accepted.

HPV testing is a very useful test which many clinicians are keen to order. Because the test is funded in specific clinical situations only, laboratories screen requests for HPV testing and reject cases that are not eligible for NCSP funding. Women outside the funded clinician settings can have an HPV test if they arrange to pay for it but very few choose to do so.

Immunisation against HPV infection

An HPV immunisation programme using Gardasil-4 commenced in 2008, and initially was free for women up to 20 years of age. The school–based programme for girls began in 2011 and has been much more successful in achieving coverage. Since 1 Jan 2017, Gardasil-9 has been funded for both boys and girls aged 9-26 years (inclusive) with two-doses @9-14 years and three doses@15+ years of age. In 2017, approximately 70% of both boys and girls (10-11 years of age) were immunised.

What has been achieved?

Cervical cancer incidence and mortality rates have reduced considerably since 1990 under the NCSP. Cancer rates for Māori women have always been higher and have reduced largely in parallel with All women rates, with some additional reduction in the difference between the incidence rates in 2015-6.

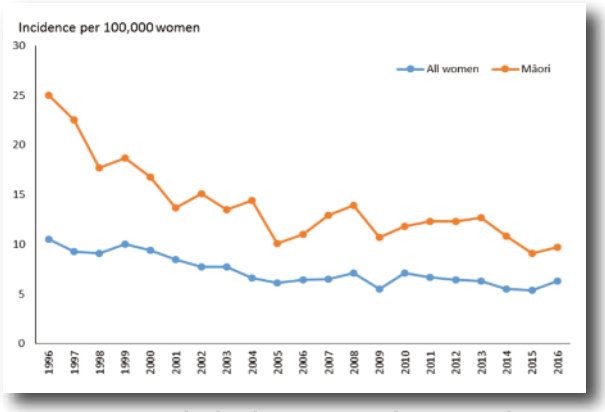

Figure 3- Age-standardised (WHO) cervical cancer incidence rates for Māori and All women, 1996-2016

Cancer incidence trends by age show a bimodal distribution typical of countries with well-organised screening programmes. Comparing cancer rates by age for 2012-2016 with the 2007-11 period, cancer incidence has continued to fall for women aged 55-70 years but has increased slightly for women aged 25-35 years. It is likely that the increase is at least in part related to falling coverage in the 25-35 year age group.

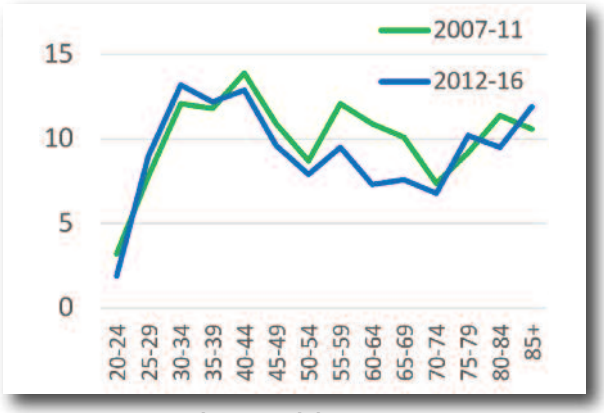

Figure 4- Cancer incidence trends by age

Mortality rates of Māori women are about 2.2 fold higher than for all women.

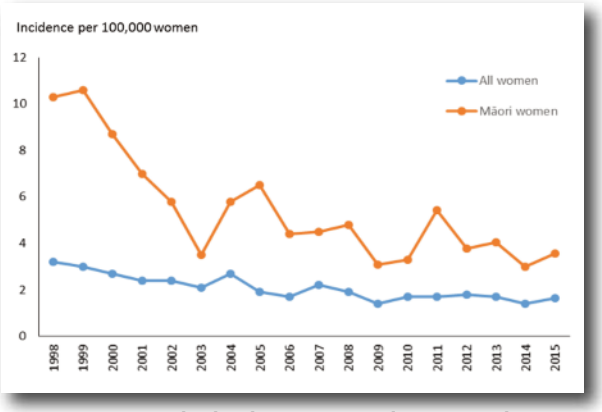

Figure 5- Age-standardised (WHO) cervical cancer incidence rates for Māori and All women, 1996-2016

Future directions

In April 2016, the Minister of Health announced that New Zealand would move to HPV primary screening with partial genotyping for HPV 16/18 and cytology triage (for HPV Non-16/18 Detected cases) and would raise the recommended commencement age for screening from 20 to 25 years of age. Modelling of different potential ways to introduce HPV primary screening was performed by the Cancer Council of New South Wales[6] using data from the NCSP Register, before a preferred algorithm was selected.

The reduction in both cervical cancer incidence and mortality by changing to hrHPV primary

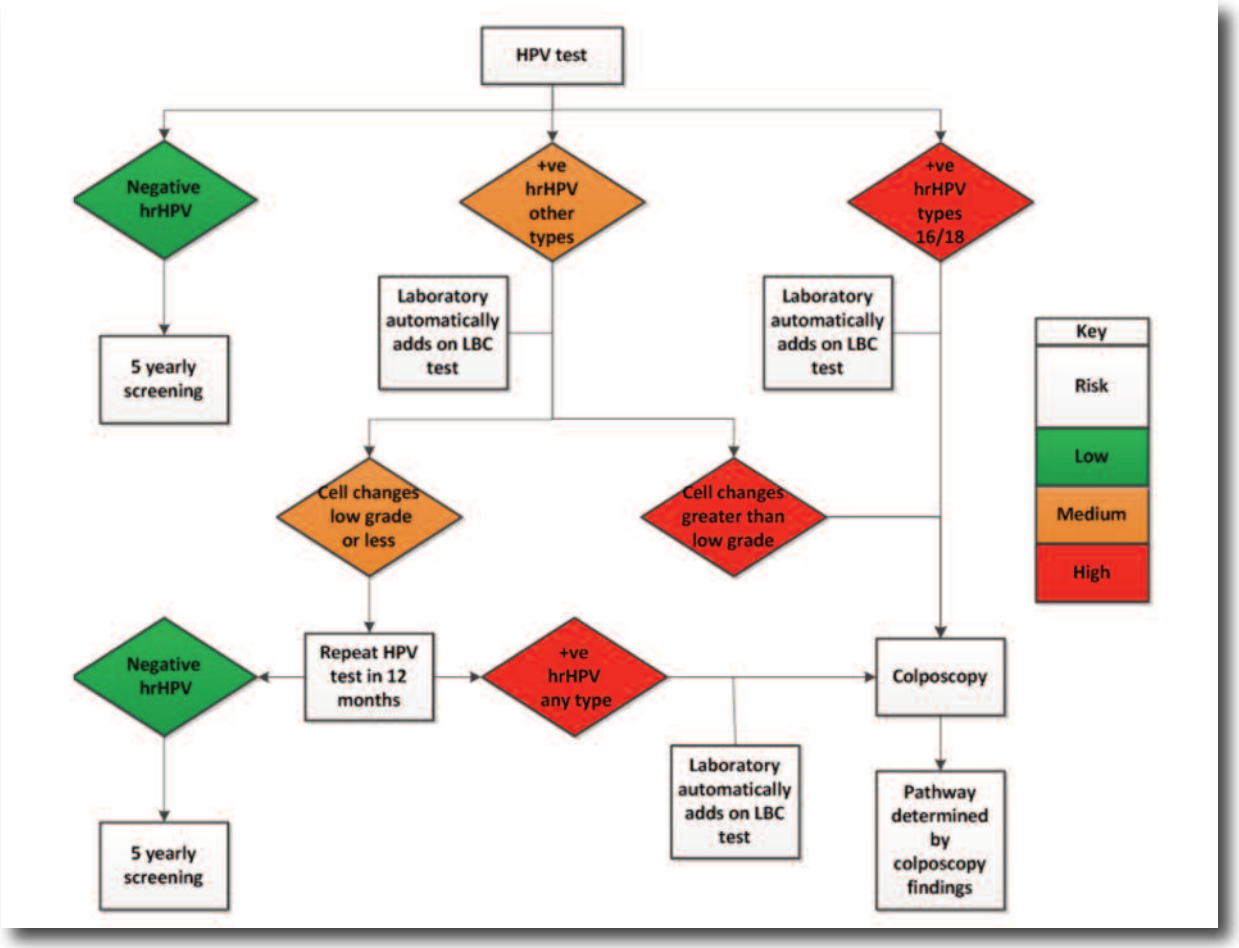

Figure 6- Proposed screening algorithm for managing women with positive test results

screening is predicted to be about 12-16%, starting at the higher figure and reducing to the lower figure as an increasing proportion of the screening population is immunised. The current proposed algorithm for managing women with positive test results is as shown in figure 6.

New Zealand needs a new NCSP Register and this necessity has prolonged the time to implementation. The proposed date to move to HPV primary screening is now 2021. Raising the recommended age to commence screening at 25 years of age will go ahead in late 2019. The future structure of cervical cytology laboratories has not been determined and procurement of laboratory services for the HPV primary screening era has not occurred yet. This remains an uncertain time for cytologists screening cervical samples.

The introduction of HPV primary screening in New Zealand is highly likely to include an option for self-testing (self-sampling). There are considerable potential coverage gains with self-testing particularly for unscreened women who are reluctant to undergo a speculum examination for a clinician-taken sample. Formal clinical trials are currently assessing the benefits and acceptability of HPV self-testing for New Zealand women and preliminary results are looking very promising. Exactly how self-testing would be offered is under active discussion.

Here in New Zealand we are following events in the UK through communications issued by the BAC with interest. As a small country we are grateful for numerous UK publications and protocols that have assisted our programme for many years and wish you well as you head into your own transition to HPV primary screening.

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HPV updates from around the United Kingdom

Allan Wilson, Scotland; Jackie Jamieson, Northern Ireland; Gareth Powell and Louise Dunk, Wales; Alison Cropper, England

Scotland's approach to rollout of HPV primary has always been different from the other four nations. The Scottish cervical screening programme (SCSP) has never used HPV testing for triage of low-grade abnormalities. The only HPV testing carried out in the SCSP is test of cure and this is centralised on the HPV reference lab in Edinburgh. As a result there will be no phased approach to go live with HPV primary and there is limited experience in the cytology labs of HPV primary screening.

This approach has created some significant challenges. Firstly, go live must be "big bang"; the SCSP will stop using cytology as the primary test on a Friday evening at the end of March 2020 and start using hrHPV testing on the following Monday morning. Secondly, the staff and systems will be developed and tested as much as possible but we will not have the advantages of the phased approach or pilot studies that have been used in England and Wales to develop workflow and staffing levels and gain experience of the technology.

To plug this gap, staff from the two labs who will deliver the new service have visited the Cardiff lab and had a teleconference with the Derby lab. I would like to thank the staff in both these labs who gave up their time to host the visit and discuss their experience with the Hologic HPV test. Further visits or tele/video conferences will be arranged as we move towards go live.

One of the other challenges we face north of the border with the big bang approach is that we need to clear the backlog of slides before we move to HPV primary as there will be no facility to report cytology as the primary test after we go live. Cytology staff across the country have been working incredibly hard over recent months after the introduction of a national rate for cytology overtime to reduce the backlog of slides and improve the turnaround times as we prepare for the introduction of the new test. From a peak backlog in April of over 49,000 slides across the country, the backlog now sits at just over 15,000 slides as of 29th July. The laboratory service is on target to eliminate the backlog by the end of 2019. We have achieved this through the dedication and hard work of the cytology staff and by moving slides between the Scottish cytology labs to reduce the backlogs in labs that are struggling with primary screening capacity.

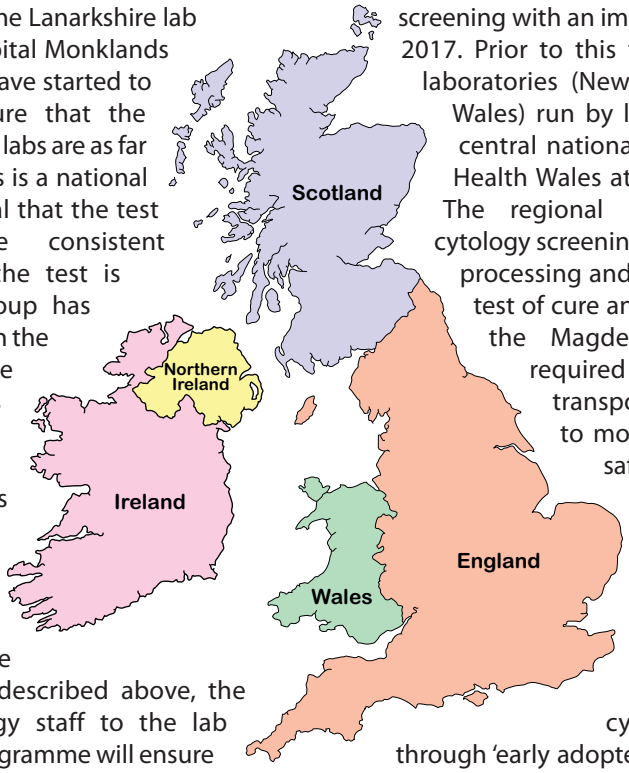
I cannot praise the effort of the cytology staff and lab managers across the seven cytology labs highly enough. This has been a tremendous effort in the face of considerable competing challenges and must be considered in light of the reconfiguration which will result in redeployment of staff currently working in 5 of the 7 labs. TUPE will not be used during the service reconfiguration. This additional effort reflects the dedication of cytology staff to the screening programme and their determination to deliver a high-quality service in the face of a significant change to the service despite staff who have been working in cytology for decades being redeployed into other areas.

Many SCAN readers will be aware that we have a unique cytology computer system north of the border. We are very proud of the system we use (SCCRS) which is programme wide and paperless. It has eliminated paper backlogs and allows data entry by sample takers and all lab functions are barcode driven. There are very few admin & clerical staff in cytology labs in Scotland due to the success of SCCRS and the programme monitoring data the system can deliver is second to none. However, despite the strengths of SCCRS it is slow to turn. A major review of SCCRS was required to accommodate the change to HPV primary and the more complex pathways and letters for women. Decisions that were previously made by cytology staff now need to be made by SCCRS and I think it is fair to say that we underestimated the resources required to deliver and test the new SCCRS. This has led to a delay in delivering the new system and a subsequent delay in the whole project from an initial go live date of end January 2010 to the end of March.

After a competitive procurement process, the SCSP has chosen Hologic as our commercial partner in this complex project. Hologic will continue to supply and support the cytology service on the two labs who will deliver the new service but also supply the equipment and consumables for the Aptima HPV test. The contract has been signed and an implementation plan agreed with clear timescales on equipment delivery, staff training and validation of the test.
Transition to HPV primary over the last few months is also causing much head scratching north of the border. The "big bang" approach means that we must clear the backlog to as close to zero as can be achieved during the last few weeks before go live. This presents staffing, IT and communication

challenges which we are close to addressing. Holding samples submitted in the week before go live and using the HPV test on these samples after go live should reduce the cytology workload across the country and allow staff to clear the remaining slides. IT solutions for processing of any outstanding samples are being tested.

The SCSP has committed to the provision of a cytology training school in Scotland. The training school will move from its current base in Edinburgh to the Glasgow lab and discussions are ongoing about the staffing arrangements and what courses will be delivered by the relocated training school.
The two labs who will deliver the new service are the Glasgow lab based at the Queen Elizabeth University Hospital and the Lanarkshire lab based at University Hospital Monklands in Airdrie. The two labs have started to work together to ensure that the processes used in the two labs are as far as possible identical. This is a national programme and it is vital that the test outcome should be consistent irrespective of where the test is carried out. A joint group has been established between the two senior teams to ensure a consistent approach is delivered.



In summary, the SCSP is on target to deliver the new hrHPV primary screening service by the end of March 2020. Despite the considerable challenges that I have described above, the commitment of cytology staff to the lab service and the wider programme will ensure successful delivery of this service which will further reduce the incidence and mortality of cervical cancer. As this is probably the last issue of SCAN before the go live date in England and Scotland, I would like to take this opportunity to thank cytology staff across the country for their years of hard work and dedication which has prevented thousands of deaths from cervical cancer. It has been my pleasure to work with you all and I wish you all the best in your future roles.

HPV testing in Northern Ireland: Northern Ireland currently has four Cytology departments. They all process and report cervical cytology. The total number of cytology samples is approximately 120,000. In 2013 HR HPV triage and Test of clearance was introduced. Through a local tender and expression of interest two of the labs were approved to undertake HR HPV testing for N.I. There is support to move to HR HPV primary screening but no policy decision has been made. An implementation group directed and chaired by the director of Cervical Screening has been established. The plan is to move to a single laboratory providing both HR HPV testing and cytology.

There are issues in relation to I.T. and colposcopy capacity which will requires addressing in this move to put N.I. in line with the other UK countries.
The time frame for HR HPV implementation now being discussed is 2020.

Sharing the Welsh experience: The Welsh national cervical screening programme (Cervical Screening Wales) began the transition to HPV primary screening with an implementation study in April 2017. Prior to this there were three regional laboratories (Newport, Swansea and North Wales) run by local Health Boards, and a central national laboratory run by Public Health Wales at Magden Park, Llantrisant. The regional laboratories carried out cytology screening and reporting, but all LBC processing and HPV reflex testing such as test of cure and triage was performed by the Magden Park laboratory. This required the development of daily transport links across the country to move vials and slides around safely.

During the implementation phase ('pilot') 20% of all screening participants were primary screened using HPV rather than cytology. This was done through 'early adopter' GP practices throughout Wales, and ensured that that every colposcopy clinic had some HPV screened women being referred to them during this phase. This phase did not lead to any significant changes in the regional laboratories, although all HPV testing was performed at the central laboratory and it did help to reduce the cytology backlog at some sites.

As the implementation phase continued, the deadline for full conversion in September 2018 fast approached. Screening and laboratory staff were anxious about what was going to happen as all Health Board laboratory staff had been informed that their laboratories would be closing. The laboratories slowly started to lose staff as they explored other roles within their Health Board, looked for alternative employment or took options such as early retirement. This began to impact on the service, particularly with turnaround times.

As pressure on the service continued, and with approval from Welsh Government, additional GP practices were trained and converted to HPV primary screening in the five months prior to full conversion. By 30th August 2018 approximately 50% of practices across Wales were converted to HPV. The CSW nursing team had to recruit and train these additional practices, as a separate exercise to the planned full conversion training, but they achieved this on target. The laboratory also had to increase their HPV testing capacity ahead of the planned full rollout and bring forward enablement works and analyser verification and preparation. The programme went to full rollout of HPV primary screening on 17th September 2018.

On 30th September 2018 the three Health Board laboratories closed, which allowed two weeks after full conversion to clear any backlogs. From 1st October 2018 all cervical screening samples have received HPV testing and triage cytology screening in the Magden Park Laboratory only. The Health Board screening and checking staff were offered redeployment under the all-Wales Organisational Change Policy, and the majority took this up. A number of screener and checker posts were made available at Magden Park, and these were all recruited to. Due to the number of pathologist and Consultant BMS staff attached to the Magden Park laboratory being insufficient to report all abnormal cytology, a CSW Pathologist Network was formed and pathologists and consultant BMS staff retained in the Health Board laboratories. These clinical reporting staff now work 'virtually' as if they are situated within the Magden Park laboratory, and have daily deliveries and collections of slides. They also continue to contribute to local MDTs, meet regularly and have centrally organised training sessions and monitoring. The evaluation of the pilot showed an HPV positivity rate of 12%, and it has remained between 11 – 12% (using Aptima) throughout the first year. The cytology abnormal rate of HPV positives is running at around 40% and the referral rate in is unchanged. We have noticed an increased pick-up of HG CIN, and PPV has improved slightly, with timeliness greatly improved. We will begin a full evaluation of the first year of HPVPS full rollout in October 2019.

Nine months on, HPV screening primary is embedded in the service and the trials and challenges of the transition are behind us. The regional laboratories worked professionally and effectively with CSW to make sure the quality of the service provided to women in Wales wasn't affected, and CSW would like to extend its gratitude to all those who have previously, and continue, to work in the programme.

Implementation of HPV primary screening in England: Following several years of 'will they, won't they, how will they, how many will there be' debates, NHS England finally commenced a tender process in November 2018 to procure a maximum of 9 provider laboratories, which would be commissioned to deliver the cervical screening programme in England using high risk HPV detection as the primary screening test. England was divided into 9 geographical 'Lots', which was in itself a surprise for many, as previous information had indicated that between 10 and 15 laboratories would be the optimal number to deliver the new programme.
The tender process closed in January 2019 and the successful bidders of 7 'Lots' were announced in April, with 2 'Lots' being awarded to the same provider. In two regions, challenges to the contract award delayed these announcements until May, but then we knew who the 8 laboratories were going to be, with new contracts to commence on 1st July:

Region / 'Lot'	Laboratory	~ Workload	HPV platform	LBC platform
North West	Manchester	516,000	Roche	ThinPrep
North East	Gateshead	548,000	Roche	ThinPrep
West Midlands	Wolverhampton	285,000	Roche	ThinPrep
East Midlands	Derby	290,000	Hologic Aptima	ThinPrep
East of England	Norfolk & Norwich	288,000	Roche	ThinPrep
South West	Bristol	305,000	Hologic Aptima	ThinPrep
South Central	Ashford & St Peters	255,000	Hologic Aptima	ThinPrep
South East	Ashford & St Peters	450,000	Hologic Aptima	ThinPrep
London	HSL partnership	740,000	Hologic Aptima	ThinPrep

At the time the tender results were announced there were nearly 50 cervical screening laboratories in England, so the cold hard facts were that almost 40 laboratories are to be decommissioned within a year, a process which has already commenced, and several have already closed their doors to any new work after 1st July.

NHS England has two targets:

- HPV primary screening must be fully implemented by December 2019
- The 8 new services must all be fully mobilised onto single sites by the end of March 2020.

This is no mean feat in anyone's books but we are told these are immovable targets and so work has begun in earnest to meet these deadlines. As of early August 2109, all regions have now signed their new contracts but that is where any consistency ends!

Unlike Scotland, there was no national procurement for a single HPV testing platform and you will see from the table above that there will be a mix of two platforms being used by the 8 labs, with slightly more samples having the Aptima test. What is really interesting is that all 8 labs have declared that they will only be using the Hologic ThinPrep LBC technology, and as Scotland and Wales have also decided to use the same LBC system there will be no Surepath LBC in the UK after 2020.

NHS England has produced a national timeline which is being used to schedule the necessary HPV conversion changes to the Call & Recall system, and hence the dates at which each region will convert to HPV primary screening. This date may or may not also be the same date for laboratory consolidation, depending whether the incumbent laboratory is ready for full mobilisation at that date.

Each region is currently in different stages of mobilisation, and one of the major issues is without doubt the HR challenges being faced. Whereas Wales and Scotland had a national plan, the 8 English labs are having to work through this themselves, relying upon HR departments from all Trusts involved, but not all appear to have the same interpretation of what TUPE means, whether it applies, which staff are included for transfer with the work, whether redeployment is an option and available, etc. Only time will tell how this is all to play out but it is without doubt a traumatic time for all involved in cervical screening. There is a very real risk that some of the laboratories will not have all the staff they require and yet others may be faced with being over-staffed and having to undertake organisational change post mobilisation.

The logistics of mobilisation are more complex in some of the regions than others. For example, Gateshead in the North East has to consolidate 7 existing labs from across a 140-mile footprint onto one site, convert 6 of these to ThinPrep, convert 5 to HPV primary and support an additional 20 MDTs – and all before March 2020 – watch this space! In comparison, Derby in the East Midlands has only 3 labs involved, all use ThinPrep, there is a maximum distance of 65 miles between the 3 sites and there are only an additional 3 MDTs to support.

Whilst the 8 incumbent labs are dealing with mobilisation all the outgoing labs are dealing with de-mobilisation, which includes not only staff management but also backlog management. It was inevitable that backlogs would develop and increase over the last few months, and some are now in the order of around 3 months with no local solutions. There is a national mitigation plan to help labs deal with slide backlogs; screening capacity released as some labs start converting to HPV primary screening is being used to help those in other areas who have backlogs. There is some evidence this is starting to work as there was an increase in achievement of the 14-day TAT in July from 33% to 40%.

In terms of programme guidance and standards we are waiting on publication of several documents from Public Health England, which are expected soon and may be published by the time this article is. The process of cervical cancer audit is being reviewed (how will 8 labs cope with slide reviews for the whole country? who will review Surepath slides?) as is the provision of cytology training (how many Cytology training Centres will be need for 8 labs? where will these be sited?).

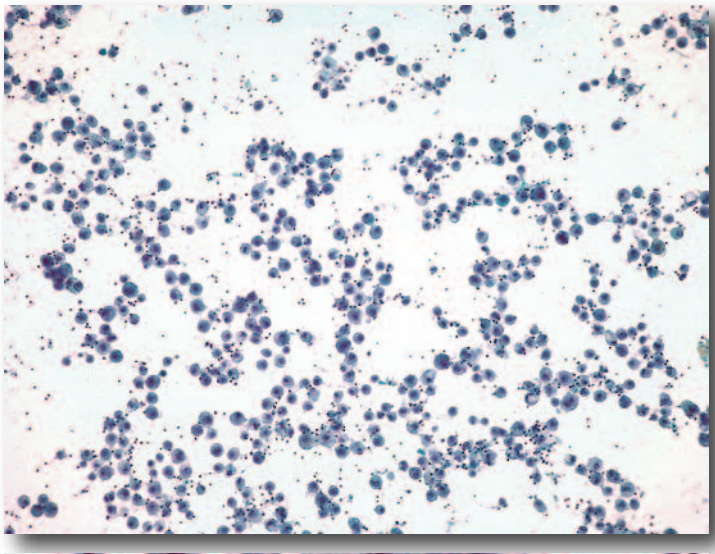
So, there is a lot of detailed work yet to be undertaken but the process of mobilisation has commenced across England. Whether NHS England's targets will be met is yet to be realised, but knowing the utter dedication and professionalism of all the staff involved, from both in-coming and out-going providers I suspect we will not be far off, and although the cervical screening programme as we know it will be changed forever the new programme will no doubt continue to be one of the best in the world.

Educational Case

Dr Paul Cross MBBS FRCPath Dr Kate MacDougall MBBS FRCPath

Male, 64, with right sided hydropneumothorax. Chest drain inserted, pleural fluid aspirated.

Look at images 1-4
Pleural Fluid Samples



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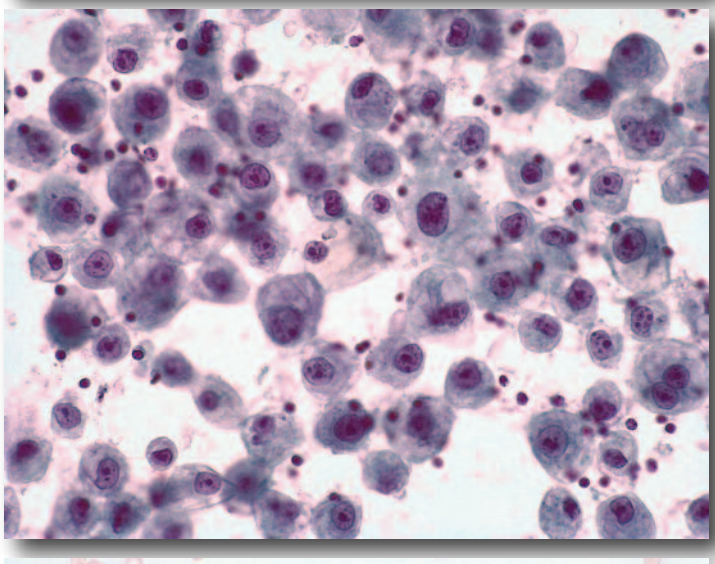

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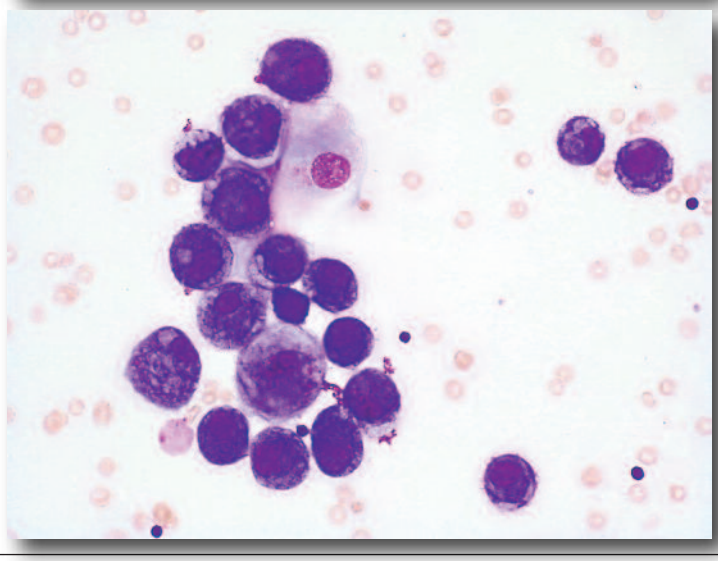

Image 3: x40 MGG

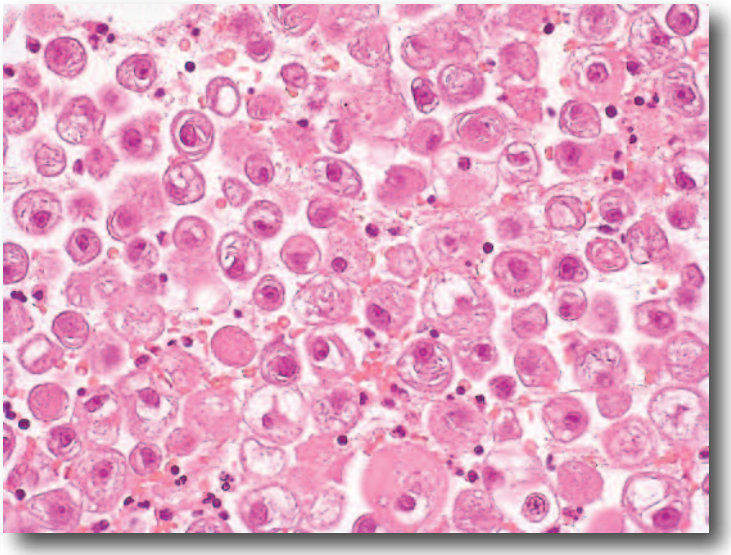

Image 4: x40 H&E

Q1 What do you see?

Q2 What cell types are these?

Q3 What is your diagnosis?

Q4 What could you do to prove this?

See page 32 for the answers.

Membership Details

Please email or write to Christian Burt if any of your contact details change.

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CEC: Journal Based Learning

Performance of HPV testing on self-collected versus clinician collected samples for the detection of CIN2 or worse: a randomised, paired screen-positive, non-inferiority trial

Polman, N. et al. *Lancet Oncology* 2019; 20:229-38

1. According to this study why might the results of previous studies involving cervical self-sampling be unreliable? (1 mark)

2. Why might this study give more reliable results? (2 marks)

3. Give 3 exclusion criteria to having a baseline sample taken? (3 marks)

4. Give two features of the Evalyn brush that aim to ensure correct self-sampling technique? (2 marks)

5. Why were some of the self-collected samples considered invalid? (1 mark)

6. What percentage of women in the 2 eligible groups did not have a baseline sample taken in this study? (2 marks)

7. For each group what percentage of women had CIN2 or worse after their baseline sample? (2 marks)

8. For each group, how many women with an original negative cytology result had CIN2+ detected on their repeat cervical sample? (2 marks)

9. What were the conclusions of this study with regards cervical self-sampling versus clinician based sampling? (2 marks)

10. In your opinion should the NHSCSP implement self-sampling and why? (3 marks)

Name…… CEC Number……

Enjoy ☺ Please send or email your completed JBL to:

Helen.burrell@nbt.nhs.uk

Helen Burrell (BAC CEC Officer)
Consultant BMS & Manager
Cytology Training Centre
Pathology Sciences Building
Southmead Hospital
Bristol BS10 5NB

Please remember to make a copy of everything before it is sent — there have been one or two losses in the post. Thank you

Cytopathology Study Day

Friday 6th December 2019

This annual event is an update for pathologists and BMS working in Cytopathology. It will provide an overview of RCPath documents relevant to cytopathology that have been written or revised this year. The recently proposed International terminology for reporting serous fluid samples will be presented. There is also a session dedicated to cytotechnology and molecular testing.

Trainee pathologists and BMS are encouraged to present interesting cases or audits to cover a wide range of topics in the afternoon session (20 min per presentation). Please contact natoya.sylva@rcpath.org and ashish.chandra@gstt.nhs.uk to discuss your participation and free registration to the event.

9:15 Registration and refreshments

10:00 Welcome and introduction

Short presentations

10:05 RCPath Tissue Pathways for Diagnostic Cytopathology - **Dr Paul Cross**

10:20 Workload guidance for Cytopathology - **Dr Gareth Rowlands**

10:35 ROSE and reporting diagnostic cytopathology by BMS - **Dr Anthony Maddox**

10:50 Cytopathology training: challenges and opportunities - **Dr Louise Smart**

11:15 Lecture - The International system for reporting serous fluid cytopathology
Dr Ashish Chandra

11:45 Lunch

12:45 Cytopreparatory techniques including cell blocks -**Ms Nadira Narine**

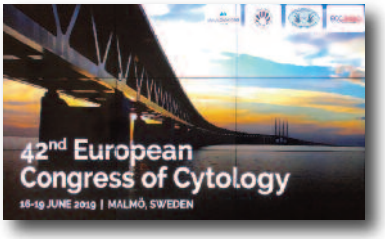
13:15 Molecular diagnostics TBC

13:45 Refreshments

14.15-16.15 Trainees session: Case presentations and audits to cover the following topics- Thyroid, Salivary gland, EBUS, EUS, Breast and Gynae cytology

16:15 Close

To be held at
The Royal College of Pathologists, 6, Alie Street, E1 8QT



European Congress of Cytology 2019, Malmö, Sweden

Alison Malkin FIBMS FACSLM,
Lecturer in Clinical Cytology and Cellular Pathology, TU Dublin

The ECC 2019 was held in Malmö, Sweden on 16th to 19th June. Malmö is situated across the famous bridge from Denmark, so the easiest way to get there was to fly to Copenhagen and get a train across. I was impressed with how easy this was, from getting tickets, the frequency of the trains and the friendly, helpful staff.

The conference centre (Malmömässan) was just outside of Malmö city, in a district called Hyllie, however this was just two stops from Copenhagen airport and only 10mins from the centre of Malmö so very accessible. I had booked a hotel close to the conference venue and on arrival found that it had an added advantage in that it was literally only a few feet from the railway station – this was much appreciated that day as the weather was much like home; wet and windy and which later developed into an impressive thunderstorm that afternoon. At the hotel reception I was pleased to see some familiar faces from the BAC Executive and we agreed to meet up for dinner that evening.

The following day, Sunday, was a gloriously sunny day and also the start of the conference programme. The day was filled with a number of companion meetings that were hosted by many Cytology Societies and Associations from around the world, including the BAC. Our session was held from 4-6pm which allowed time to visit the conference centre and find the relevant room, as well as wander around the commercial exhibition. In comparison to other conferences this was quite small, however there were a few interesting products, one of which the BAC executive were extremely interested in; a FNA simulation dummy called FioNA!

The BAC companion meeting went smoothly and was relatively well attended considering it was running alongside 7 other meetings or sessions. Our programme included talks from members of the executive and that are of particular interest and relevance in the UK at the moment. These were; 'pHPV screening in the UK' by Alison Cropper, 'Expanding roles for scientists in Cytopathology' by Allan Wilson, and the 'RCPath tissue pathways for diagnostic cytopathology specimens' by Dr Paul Cross. We were also very pleased to have Dr Roberto Dina present on 'Digital technology; its advantages in the new era', which gave a good insight into how technology could influence future practice and education in cytology. I was chairing the session and am pleased to say that we kept to time. This was important as the Opening Ceremony was being held later that evening in the same room and both the organising committee and the 'band' were anxious that we be finished on time for them to set up the stage.

The Opening Ceremony was on at 6.30pm so the majority of delegates stayed at the venue after the talks. At the appointed time, we were welcomed to the conference by members of the ECC 2019 organising committee following which we were entertained by a live band. Being in Sweden, I am sure you would be able to guess that this was an ABBA tribute act which went down a storm and by the end

of the set had the majority of the audience, including the BAC Exec, up on their feet dancing away to Dancing Queen amongst other ABBA hits.

After the welcome we went into the main area to enjoy a glass of wine and finger food while catching up with friends, colleagues and visiting the commercial stands. On the way back to our hotel, we called into the Best Western Hotel, just opposite the conference centre, which had a Sky Bar from where we watched a beautiful sunset over Denmark while we continued our evening talking all things cytology!

The programme for the next 3 days was jam-packed, with a range of topics covering cervical cytology and pHPV testing, digital pathology, molecular cytology as well as specific themed sessions for diagnostic cytology such as thyroid, lung, breast, head and neck, urine and anal cytology. The programme started from 8.30am and went on until around 5.30pm each day with much needed breaks for coffee and lunch. There was also a Keynote speaker each day and a commercially sponsored lunchtime session on Monday and Tuesday so plenty of opportunities to learn what was new and developing but also where cytology and Cytopathology is in other European nations as well as further afield, such as Japan and the USA.

To write about all the sessions I attended would take up this whole edition so I am going to just give a synopsis of what I have as my 'take-home messages':

pHPV:

Many countries have or are facing similar challenges to the UK with implementation of pHPV. At all the talks I attended, they were advocating for the retention of staff in cytology not just for morphological screening but for pHPV testing itself. There was much debate regarding the management of pHPV +ve/ cytology –ve cases. The main consensus seemed to be that these women would require early repeat re-testing and 12 monthly interval being most widely proposed.

Co-testing (HPV and cytology), especially for women under 30yrs, and biomarker testing (CINTEC Plus and molecular markers) as triage test were also presented. It will be interesting to see if these will go on to be implemented into national screening programmes.
One talk that resonated with me was by Dr Dina Mody who presented pHPV data from her laboratory in relation to false +ve or false –ve cases. This was of particular interest to me due to the recent controversies in Ireland. It will be important that the women attending screening, the public and the media are aware that this is an inherent aspect of all screening programmes so that expectations can be managed and the benefits of screening can be promoted.

Extended roles:

Throughout the programme, expanding roles for cytology staff were presented and advocated. These included diagnostic cytology screening and reporting, FNA ROSE, both sample management and reporting, molecular cytology and also histopathology pre-screening was presented. Many of these will provide routes for cytology staff to diversify and utilise their skills however this will need support and input from pathologists and laboratory managers as well as structured education programmes for some of these roles.

Education:

It was of interest to see the different education systems for cytology staff, in particular across Europe. With the implementation of pHPV and diversification

of cytology staff there is a need for continued education for these new/extended roles as well as interpretation of potentially more complex morphology in pHPV era. Structured programmes may be needed to support on-site training in many of these areas and could be an opportunity for training schools to expand their provision to meet these needs.

Molecular Cytology:
Molecular diagnostics and prognostics is a rapidly developing aspect of the pathology laboratory and the application to cytological material was presented at a number of sessions within the programme with many examples of its viability and reliable clinical outcomes. It is not without challenges but is becoming part of the routine work-up in a growing number of laboratories. Of interest was the comment that morphological assessment is still an essential part of the diagnostic work-up.

Both as a delegate and chair of the BAC Meetings subcommittee I thought the conference centre was excellent. The rooms were well signed and each was manned to allow late entry into the room. The staff were friendly and helpful and from my perspective as someone with a dietary requirement, the food was excellent – with a separate section for gluten and dairy free options including milk alternatives. This is not often the case and made it a stress free experience. The only problem I was aware of was on the first day, where the room for the Gynaecological

Cytology Symposiums was too small for the number of delegates, and many had to stand around the edge of the room. I can appreciate that it is difficult to predict how many delegates will attend any one session and is probably reflective of the relevance of the programme of talks in these sessions for the attending delegates.

As part of the conference programme there were a number of social events on in the evenings and I was fortunate to be invited to attend a dinner hosted by the Major of Malmö, which was held for the speakers and chairs of the sessions on the Monday evening. This was hosted in the impressive Town Hall building in the centre of Malmö.

The following night was the Get Together Party however I went into Malmö that evening with a group of BAC friends and colleagues where we wondered through the quaint streets for a while before finding a great place for dinner, called Julie, just off one of the squares and which I can highly recommend. The food was great as was the friendly staff and great service. As a destination, I really liked Malmö, it has an interesting history and many great architecturally interesting buildings and features. It is easy to get around and incorporates small squares with cafes and bars; green space and a riverside walk. The great weather probably also played a part in my appreciation of the city!

From my perspective, ECC 2019 was a very successful conference. The programme was diverse and interesting, the venue was excellent, the BAC Companion meeting was well received and I came away with new knowledge and understanding of the many different and developing aspects cytology.

Review of European Congress of Cytology 2019, Malmö

Stephen Burrows CSci, FIBMS DMS, Consultant Biomedical Scientist, Manchester Cytology Centre, Clinical Sciences Centre

Never having previously attended an oversees cytology Conference, nor ever having had the opportunity to visit Scandinavia, it was with some anticipation that I set off to attend the 42nd European Congress of Cytology (ECC2019) which was being held in the Swedish coastal city of Malmö.

Interestingly my flight from Manchester was to neighbouring Denmark, the closest International Airport being that of the Danish Capital city, Copenhagen. Following my arrival it was a short rail journey across the wonderful Oresund Bridge, an iconic architectural gem of which the Swedes are rightly proud, into the host City. Despite getting on the wrong train, resulting in me overshooting my destination somewhat (!), I eventually arrived at my hotel, looking forward to attending three days of lectures and workshops. Of particular note was that there was no "Irish backstop" in sight here, seamlessly being able to travel between the two counties by rail without any visible border control checks.

If I was a little apprehensive about the trip it soon became apparent that I needn't have been. Sweden is a wonderful, modern, and efficient Country. I was immediately impressed by its mix of innovative, modern architecture and traditional buildings. Sweden is famed for its simple but elegant design and it didn't disappoint at all.

The hosts were welcoming, the Conference extremely well run and the programme on offer was diverse and up to date. I was particularly impressed by the Conference App which enabled delegates to plan their attendance in detail, and for any last-minute changes to be communicated promptly by the organising committee. The conference ticket also provided free train and bus travel throughout the City, enabling delegates to make the most of their free time. The use of "e-posters" was welcomed, enabling the many posters to be constantly refreshed in the auditorium throughout refreshment breaks. My personal focus, reflecting my role and also my main interests, was on attending lectures relating predominantly to gynaecological cytology, and the organisers must be congratulated on providing sessions relating to this topic on each of the three days I attended. Running in parallel were many talks and practical workshops covering a range of non-gynaecological topics, ensuring there was always something on offer of interest to all attendees, no matter what their job roles or areas of self-development were?

Such congresses are an opportunity to share best practise with a wider audience in order to drive up quality standards in Cytopathology. We can learn much by reflecting on times when things have not gone to plan, exemplified by presentations by Karin Denton reflecting on what we can learn from the Scally review into cervical screening in Ireland, and also by Allan Wilson on how the service should respond to untoward findings from invasive cervical cancer audits.

Unsurprisingly the sessions were dominated by the roll out of HPV primary screening (HPVps) across the continent of Europe. It was somewhat refreshing to realise that all Countries are wrestling with the same issues that we are in the UK. Admittedly some countries are much further down the road to full introduction than others but it seems that eventually all have to meet head-on the undoubted challenges

it creates. The same themes are rearing their heads across Europe to some degree:

- Whether to fully implement HPVps alone or to use cytology co-testing in the younger screened population. Many European countries are advocating the use of co-testing with cytology for at least the first screen and it will be interesting to see in the fullness of time if this results in any significant benefit to these screened populations, or indeed if it is being introduced partly to help manage the sudden potential drop in cytology screening workload otherwise.
- The "lost" added-value when replacing Cytology primary screening with HPVps , for example non-cervical cancer diagnosis, assessment of hormonal status, identification of infective agents.
- The realisation of false negative HPV test results in HSIL and cancers, albeit small numbers.
- Reduced participation in cervical screening across the Continent.
- How to manage the ever shrinking numbers of cervical cytology screening staff required post implementation of HPVps.
- How to manage the short term spike in Colposcopy referrals post implementation.
- How to train and educate to the same high standards the smaller numbers of screening staff required.
- How to improve the specificity of HPVps, particularly in young screened women where HPV positivity rates are highest.
- How to screen the vaccinated and non-vaccinated populations concurrently in a safe and equitable fashion, recognising the marked decreased prevalence of significant cervical disease in the former.

One of the things that surprised me somewhat was the plethora of different HPVps screening strategies being tested or planned across the European countries. There is certainly nothing approaching a single common approach, each country developing its own screening strategy, the consequence of which is a seemingly endless variation in age of first invitations, screening intervals, age of exit from screening, HPV testing platforms, liquid based cytology systems and parallel molecular testing regimes. This is a result of each country having a unique set of influences, for instance HPV prevalence rates, individual HPV genotype rates, maturity of cervical screening programmes and HPV vaccination programmes, and use of conventional or LBC systems. There is much debate across Europe as to which is the ideal HPV testing platform; should it be RNA or DNA based, and which molecular test to use alongside? Denmark for instance is to compare HPV 16/18 genotyping, extended genotyping and p16/ki-67 dual staining as means of assuring the optimal balance of sensitivity vs specificity of HPvps. It is also investigating the use of HPV self-testing in an effort to increase coverage of population, and may offer it at first invitation, not only for non-attenders as is often cited.

The use of Digital pathology is a topic which is high on the agenda at present, and this was reflected by a lunchtime symposium provided by Hologic at which they demonstrated their innovative new system. One of the undoubted consequences of the introduction of HPVps is that gynaecological cytology is becoming less attractive as a career path for technical and clinical staff alike. The specialty has to consider how an ever shrinking number of experts are to be able to continue to provide reviews of challenging slides in a timely fashion and also to provide educational sessions to students spread more thinly across the Continent. Surely the development of digital pathology systems such as that demonstrated by Hologic will be crucial in facilitating these critical needs in the future.

To this end one of the educational sessions included lectures provided by speakers from Sweden and from Croatia in which they reviewed the current state of virtual pathology for the purpose of education. It is

proposed to develop an ambitious integrated teaching platform where digital files could be uploaded and shared, lectures and courses could be presented, images could be annotated with educational supportive notes, and ultimately live chats could take place between the host and the students. After all a digital slide atlas may be a useful reference tool but at the end of the day it is just a form of documentation; a teaching platform needs to be interactive and to be able to provide a means of assessment of learning.

There was a strong focus on the continuing education of cytotechnologists and clinicians against the background of HPVps. How does training need to adapt? What are the new challenges and opportunities for staff? What are the transferrable skills that cytologist could use in other ways? There was much talk of multi-skilling and extended scope of practice for cytology staff, for instance cell block preparation, interpretation of histochemical stains, andrology, preparation of non-gynaecology samples, reporting of non-gynaecological samples, fine needle aspiration attendance, on-site analysis of EBUS / ROSE samples to name but a few. However it is now more apparent that at any other time that there is much variation in the quality of basic training in cytology across Europe, and particularly so in non-gynae. It is clear that the profession has to move fast to retain the skilled staff we currently have. In the Netherlands for instance the number of cytotechnologists has reduced from 600 in 2011 to just half that number in 2017.

I attended several presentations on the topic of screening for anal cancer pre-cursor lesions. It is interesting to note the similarities in the natural history of anal cancer and cervical cancer, each being HPV driven, having well recognized pre-cancerous stages (AIN and CIN) and involving squamo-columnar junctions. Set against the background of decreasing incidence of cervical cancer in a vaccinated female population perhaps there is an opportunity for cytotechnologists to develop skills in interpreting anal smears in order to screen at-risk individuals, particularly those who are immuno-compromised.

The British contingent was small in number but certainly not in influence. Those cytologists attending from the UK were diligently presenting lectures, chairing sessions, attending committee meetings or presenting workshops and it was very clear to me that their input is very much respected and valued by our oversees colleagues. This was not just a European conference, there were attendees from all across the World and this provided an ideal opportunity to exchange ideas and discuss the way ahead in these challenging times for the specialty of Cytology.

As a consequence of my attendance at the conference I was very fortunate to be able to join a small contingent of Cytologists from the UK to visit the Cytology laboratory at Hvidovre Hospital in Copenhagen, kindly hosted by Jesper Bonde. The tour of the laboratory was a real eye opener for us all, a look into the (hopefully not too far off) future of Cervical Cytology in England. The department was incredibly efficiently run, clutter free, with "just in

time" consumable management, "real time" workload management, one hundred per cent electronic requesting, computer guided screening, and trialling of electronically- chipped Human Papilloma Virus (HPV) self-testing. This was a wake-up call for me personally; it is easy to become quite insular, assuming that the UK is at the forefront of the introduction of HPV primary screening in Europe, when the reality is that there are parts of Europe leading the way, and we really need significant investment in technology to stand any chance of catching them up any time soon.

The only disappointing aspect of the Congress for me was the small "Exhibitors" presence, and given the presence of such a wide audience from across Europe I was hoping for a more varied range of stands to visit. If, like me, you have spent years looking at the advertisements for oversees conferences and thought to yourself "how would I benefit?" or "how would I fund it?" I would urge you to think again and "go for it". It opens up opportunities you could never get again, it opens up your mind to new ways of thinking and working, and it is a chance to sample what different counties have to offer. There are many ways to fund such opportunities, from approaching

your host Trust, to your department's consumables suppliers and also for instance the BAC bursary scheme.

I am extremely grateful to the BAC and also to Roche who each contributed financially to enable me to have this fantastic opportunity to attend ECC 2019. I would encourage you to consider attending ECC2020 which is due to be held in Wroclaw Poland should the opportunity arise.

HOLD THE DATES!

CYTOPATHOLOGY STUDY DAY 2019

6th December 2019

The Royal College of Pathologists, London
Joint RCPath and BAC meeting
https://www.rcpath.org/event/cytopathology-study-day-2.html

BAC Spring Tutorial

Date/Topic to be announced – further details will be announced

BAC Annual Scientific Meeting 2020

2nd-3rd October 2020

Double Tree Hilton Hotel, Nottingham
The Annual Scientific Meeting (ASM) of the BAC will include themes of Diagnostic Cytology, Molecular Cytology and Digital Cytopathology
Speakers to include Professor Andrew Field
www.britishcytology.org.uk/go/cytology-events~21

43rd European Congress of Cytology

4th-7th October 2020

Wrocław, Poland
www.cytology2020.eu

Cervical screening in Moldova

Hedley Glencross, Advanced Specialist Biomedical Scientist, Cytology Department, Queen Alexandra Hospital, Portsmouth PO6 3LY

SCAN readers will be aware that I have been involved in a project to introduce a cervical screening programme into the Republic of Moldova (RM) and have reported back on this initiative twice so far.

As part of this project, I have visited RM three times, in 2017, 2018 and most recently in April of this year, to make a more detailed examination of laboratories in Chisinau, their processes and facilities, having made brief visits to them in 2017. Without going into too much detail that I have previously reported upon, the facilities, equipment and processes were rudimentary at best in 2017 and not much better in 2019, although I could see that some recommendations made in 2017 were being adopted in a few of these laboratories.

The biggest change recommended in 2017 was to move from air-dried, Romanowsky/Giemsa stained smears to alcohol-fixed Papanicolaou stained smears, as this is recognised as the method of choice for organised cervical screening programmes. The pick-up rate of abnormalities in RM was very low at approximately 1%, as Romanowsky/Giemsa staining is poor in the detection of the (often) subtle cytological changes we recognise as markers of CIN. It was also apparent that the staff had not been appropriately trained in the taking, fixation and interpretation of cervical smears.

To facilitate this, a series of courses for primary health clinics took place to train staff in the taking, labelling, spreading and fixing of smears. One of my roles in this process was to develop a functioning Papanicolaou staining method for these smears, so that meaningful information could be fed back to smear takers on the quality of their smears, as well of course provide well stained slides that could be screened and reported accurately.

For me achieving a good Papanicolaou stain is relatively straightforward. The stain itself is a modified trichrome stain, with the counterstains made up in alcohol rather than as aqueous solutions. This make-up confers translucency to the cytoplasm of the cells in the final preparation, allowing nuclei within cell aggregations to be resolved individually, as well as staining immature and mature cells a range of colours, green, pink, peach and orange. Something we take for granted in UK, but all new to the Moldovans.

The method provided was the method used at my own laboratory, as used previously (by me in a previous employment) on conventional cytology smears and further developed by myself when we changed LBC technologies from SurePath™ to ThinPrep®. This method regularly scores high marks in the gynaecological staining EQA and I thought it interesting to see how it would transfer across country boundaries to another laboratory.

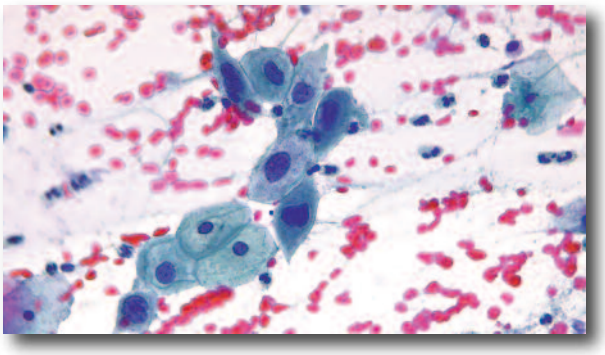
Essentially, this is a progressive haematoxylin method, as it is diluted 50/50 on first usage, so in effect creating a near half-oxidised haematoxylin. The counterstains being used as you would in a trichrome stain, staining for sufficient time to allow the larger molecular weight dyes to penetrate the least permeable cells and differentiating in alcohol long enough to create the range of colours described above.

RM can suffer from supply issues, particularly in one laboratory, where formulations and suppliers change from year to year. In one case, they were following this method, but were diluting already half-oxidised (Gills 2) haematoxylin, creating a muddy appearance to the nuclei, rather than the desired well defined chromatin patterns expected. Switching to use this haematoxylin undiluted produced much better nuclear staining results.

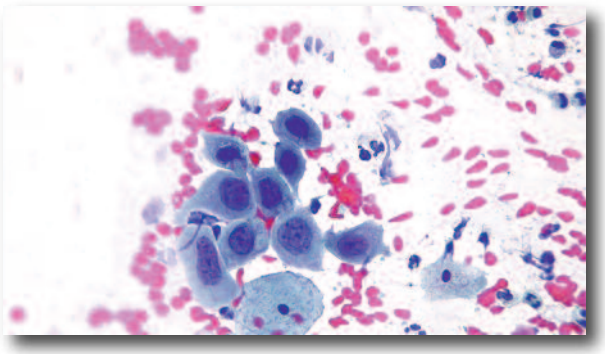
Counterstaining was equally an issue in RM, often having a very monochromatic appearance, mostly a bland grey/green colour, but sometimes vibrant green, with pink, peach and orange being absent in most slides examined. I suspect that this is also due to the various formulations of OG6 and EA50 used, as much as it is due to staining times. With my help, we were able to achieve better results, but still not to my complete satisfaction.

However, once I was able to stain some smears using 'Ortho formulation' Papanicolaou stains, the results were much better. Nuclei were blue and a full range of counterstain colours were seen. Why Ortho stains? The answer to me is simple, they are made to the exact formulation as developed by Papanicolaou himself and crucially the EA contains light green, as opposed to many other commercial formulations that use fast green instead, mostly because it is a cheaper dye.

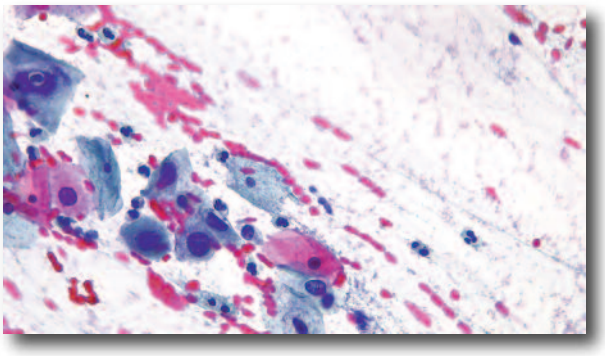
Since returning, I have been informed that the laboratory based in the Republican Hospital has gone further. Not only do they have a modern automated staining machine and integrated coverslipper, which is producing results as shown above, but they have also set-up a dedicated screening room separate from the preparation area. This room is air-conditioned, has work stations and is equipped with slide projection facilities so that individual cases can be discussed. Although the tables remain fixed at this time, they do have new ergonomic seating and are also due to take delivery of ergonomic microscopes in the near future. This is very much due to work locally, but the project group has been able to support this by providing evidence, expertise and specifications for the equipment and facilities.



Metaplastic looking cells with active chromatin and slightly raised nuclear/cytoplasmic ratios



Metaplastic looking cells with disturbed chromatin patterns, variable size/shape of the nuclei and significantly increased nuclear/cytoplasmic ratios



Metaplastic looking and more mature cells showing translucency and clearly defined differential cytoplasmic staining

The Moldovans now have a method, and supplier recommendations that will provide a good Papanicolaou staining result, although I expect it may require some local tweaking, which unfortunately I was not able to do in the very short time of my most recent visit.

I now have some photographs from the early batches of stained slides, by kind permission of Dr Ruslan Pretula from the Republican Hospital in Chisinau. These pictures are of conventional smears though, so are by their nature not as well fixed and the background is not as clean as we are used to with LBC preparations, but the chromatin patterns are visible and there is appropriate cytoplasmic staining in these metaplastic looking and the more mature cells.

Although there is still much work to do, mostly around computerisation, call/recall and fail-safe activities, the quality of the smears and the laboratories' ability to stain, screen and report these smears is well placed now.
As a group we will continue to support this fledging programme and I will report back again in future issues of SCAN.

The Republican Hospital screening room showing the new chairs and the slide review station.

ICC, Sydney May 2019

Bruno G. Machado LIBMS,
Cytology Biomedical Scientist, HCA Healthcare UK

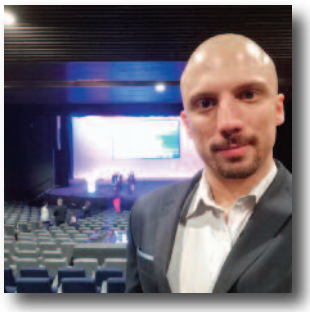
Opening note

The International Congress of Cytology (ICC) took place in Sydney, Australia 10-15 May 2019, and I would like to share with you my experience during this world-class gathering in the name of a highly specialised and beloved field. I considered my highlights into four clusters where you'll find scattered a few lines about myself too because quite frankly I'm new around here.

It's all about cytomorphology

When I was a kid I had a microscope and a telescope, and my quest since then has been either visualizing the littlest aspect of existence or wondering about our place on a cosmic scale, from which I derive a natural inclination for optics and whatever comes with it: photography and filmography, astronomy and cytology. Likewise during the ICC, brilliant speakers infused on us pure textbook-like remarks of a plentiful array of human conditions ranging from normal to metastatic, spanning across a diversity of organs that we probably face in our daily practices: breast, thyroid, lymph nodes, salivary glands, lungs, pancreas, serous effusions, gynae, etc. All accompanied by detailed and outstandingly beautiful pictures that made the days of a nerd like me. Science and art can blend too well, hence my need to thank Dr William Geddie for giving a tremendously rousing talk about his career, filled with photomicrography that led my mind to loop a quote from Dr Richard DeMay: "*I'm fascinated by colours, shapes, and textures, which are the basics of art, as well as cytopathology*".

But not everything is cytomorphology



I'm a cytology scientist just like many other colleagues who showed up, and as one of my mentors once wrote to me, '*technical excellence [is] equally important as diagnostic excellence*'. Therefore, our lab coats are not only a fancy way to look good, but also a shield we put on to defend people's health and an armour to fight against diseases. And we are witnessing the rise of innovative weapons against cancer such as liquid biopsies, novel biomarker archery and new molecular guns. The lab coat is also a symbol of union amongst us, coming together for the greater good, for that we engaged in enriching discussions about cell block preparation (Ms Donna Russell) and superior techniques to obtain good FNAC material (Dr Ronald Balassanian). The ICC then posed a chance of communication between healthcare professionals, paying attention to current conflicts in terminology and learning about the arduous work of defining categories that puzzle up a reporting system. Always with cool graphs and super intelligent tables.

It's the culture we create, live and believe in

A memorable thing of the ICC was watching Twitter getting busy with little notes and pieces of information, posted especially for the ones who were

not able to attend, undeniably breaking all geographical boundaries. For those who went, connecting with peers from across the globe and developing a professional network was a big plus. It was indeed a thrill to interact with so many passionate people, many of them possessing impressive skillsets or massively developed research bodies that would spill out expertise and discoveries. All in all, being surrounded by authorities is fantastic, but talking with them is even better. It makes you question your own relevance and teaches you how to be humble yet confident, which prompts you to take charge of your young career and do something about it. But we didn't just drink the knowledge of our experts... We could have a drink with them as well! And that's how I went mad on the dance floor during the Formal Dinner, to the sound of awesome Australian rock. We are all humans and enjoy a spot of fun.

It calls for a walkabout because of… the sights!

I need a strong reason to travel and ought to outweigh the necessity of saving up. However, because of the ICC, within my short period of a week, I was able to fly to Oceania for the very first time, unexpectedly gifting myself with an unprecedented swim in the Pacific Ocean, and my Portuguese skin absolutely adored the Australian sunny coast. I saved a bit of time for touring around Darling Harbour under the stars and hopping on a ferry with friends by day. I've seen the ever so cliché but nonetheless charming Harbour Bridge and Opera House, stunning by day and by night. I have been to the gorgeous and peaceful Chinese Garden of Friendship; to the hectic and luxurious Queen Victoria Building; to Hyde Park, St. Mary's Cathedral, and obviously the Tower of Sydney where I could contemplate the city from above and get a sense of an eclectic environment. This is the part my Instagram loved the most.

Closing note

Curiosity is about tackling what we don't know and can go hand in hand with excitement and trepidation. Science is making sense of the unknown and eradicating concerns with data. And more than just collecting a treat into my CPD bag, the ICC was another shot into studying enough to be able to report non-gynae cytopathology one day. That's why I'll be forever grateful for this comprehensive 8am to 6pm multi-session conference held in Sydney's International Convention Centre, a very sleek and spacious building. I would like to laud AV/IT technicians and the infrastructure for providing such amazing equipment at the heart of these very many presentations, and not to forget the catering team for the delicious meals.

Overall, congratulations to the International Academy of Cytology (IAC) and the Australian Society of Cytology as it cannot be easy to organise a congress with over 600 attendees: it was an in-house escapism for some but literally the antipodal trip of a lifetime for others! Appreciation goes for my employer, Hospital Corporation of America (HCA) UK for allowing me study leave and contributing to some of my costs.

I leave my final thought with my mentors who not only are brilliant teachers, but also keep on stimulating me to continue my education and tell me not to be afraid of making my career a thing of my own. Thank you, Dr Ashish Chandra and Mr Ruben Roque.



Educational Case answer (p16)

The images show a dispersed population of cells, with varying degrees of cytoplasm. The majority of the nuclei are round/ovoid with some irregular nuclear membranes and notches, and many have fairly abnormal chromatin and prominent nucleoli. The cytoplasm has a fibrillary appearance with some surface ruffling but again this is variable and not consistent. No mitoses are seen. Similar features are seen in the Romanowsky and clot. Initial thoughts were that these were degenerate/reactive mesothelial cells. The initial immunohistochemistry showed the cells to be WT1, calretinin and CD68 negative. This would not support a mesothelial or macrophage cell lineage. A thorough search of the pathology records identified a history of previous biopsy and cytology proven lung adenocarcinoma, with previous medical treatment. This vital piece of information had not been provided! A second round of immunohistochemistry on the clot showed the cells to be HEA, CK 5/6, CK7 and CEA and positive, and negative with CK20, CDX2, PSA, TTF1 and GATA3. The original tumour, on diagnosis two years previously, had been reported as a lung primary adenocarcinoma, staining with CK7 and TTF1 focally. Molecular testing on previous samples had shown the tumour to be EGFR wild type and ALK mutation negative. There had been insufficient material to undertake PDL1 testing.

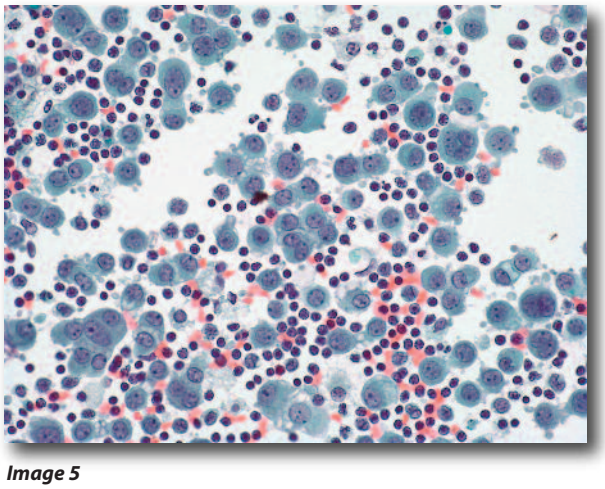


Image 5

This case highlights two main problems: the lack of a proper clinical history and the problems that can occur with a dispersed cell population. The former is difficult to overcome, and access to medical records and previous pathology. In this particular case a colleague knew of the patient and identified the relevant history. The second is a problem with cell patterns in a fluid. Not all tumours look obviously atypical or show obvious differentiation. If this occurs, then identifying the cells as abnormal can be difficult. Comparison with "definite" mesothelial cells is always useful ("two cell population") but in this case it is an almost pure population of what turn out to be malignant cells. Comparison of the images with those of a reactive proven mesothelial cell population (images 5) show the mesothelial cells to have more central rounded nucleus with little, if any, nuclear membrane irregularity, finely stippled chromatin and a generally single nucleolus. The cytoplasm is usually dense, with a "frilly skirt" appearance in most cells. The cells in this educational case appear similar at first glance, but are different and more atypical with respect to these features. Their nuclei are generally eccentric, with irregular membranes and coarse chromatin and very enlarged prominent nucleoli. The cytoplasm is vacuolated in many cells, and whilst "coarsely roughened" is not "fine and frilly". The use of immunohistochemistry in differentiating mesothelial cells from adenocarcinoma cells can be difficult, but use of a panel, as suggested by the British Thoracic Society can be very helpful. The immunohistochemistry is in keeping with the original diagnosis, accepting that both the cytomorphology and staining can be quite different post chemotherapy. This gentleman had had radiotherapy and six cycles of Carboplatin/Pemetrexed, for what clinically was a right upper lobe adenocarcinoma, T3 N3 M1b, with proven bone metastases. Sadly, the patient died a few months after this sample was received.

REFERENCE

British Thoracic Society Guideline for the Investigation and Management of Malignant Pleural Mesothelioma. Thorax. Vol 73, Suppl 1, March 2018.

SOUTH WEST REGIONAL CYTOLOGY TRAINING CENTRE

BRISTOL

2020 Course Schedule

Date	Gynae Courses	Fee
8-19 June 6-17 July	Introductory in Gynae Cytology – Part 1 Introductory in Gynae Cytology – Part 2	NHS £1000 Other £1200
30 January 5 March 6 May 24 June 2 September 14 October 2 December	One Day Update in Cervical Cytology	£100
3 June 25 November	Update in Cervical Cytology for Pathologists & Consultant BMS's & Holders of the Advanced Specialist Diploma in Cervical Cytology	£100
30 January	Cervical Histology for Technical Staff	£100
21-22 May	Gynae Pathology for Trainee Colposcopists	£200
10-11 February 11-12 May 21-22 September 2-3 November	Cervical Sample Taker Training	£300

Date	Non-Gynae Courses	Fee
19 March	Serous Fluid Cytology	£100
6 February	Respiratory Cytology	£100
11 November	FNA Cytology	£100
1 April	Urinary Tract Cytology	£100
9-12 March 14-17 September	Non-Gynae for Trainee Pathologists	£400

South West Regional Cytology Training Centre

Department of Cellular Pathology
Pathology Sciences Building
Southmead Hospital
Bristol BS10 5NB

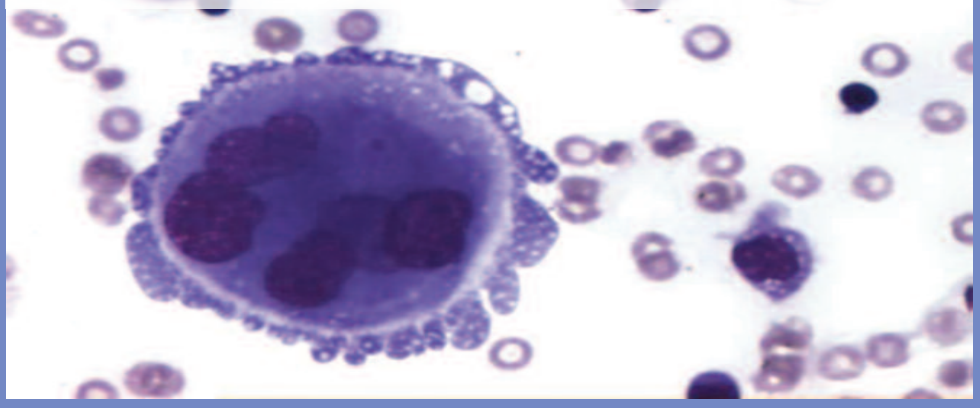
Tel: 0117 414 9808

Email: SWRCTC@nbt.nhs.uk

www.cytology-training.co.uk

NEPSEC North of England Pathology and Screening E

Non Gynaecological Cytology



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Courses in Expert Practice Diagnostic Cytology

These courses cover serous fluids, urine and respiratory cytology and are ideal for anyone wishing to further their experience or workings toward the IBMS DEP

19th, 20th, 21st & 22nd November 2019

Exam Practice for the IBMS Diploma of Extended Practice in Non-Gynaecological Cytology

Ideal for anyone taking the IBMS Diploma of Extended Practice in Non-gynaecological Cytology

2020 Dates TBC

Exam Practice for the IBMS Advanced Specialist Diploma in Non-Gynaecological Cytology

Ideal for anyone taking the IBMS Advanced Specialist Diploma in Non-gynaecological Cytology

5th & 6th March 2020

Three Day Update Course in
Consultant Biomedical Scient

It includes elements of Gynae Hi
and MDT cases amongst other t

6th – 8th November 2019

Your Role as a Cervical Scree

This course is developed in asso
AMG to guide both experienced
the role and covers many differe
CSPL may encounter.

10th & 11th June 2020

Breaking Bad News
A one-day communication sk

A one-day communication skills
communication challenges, facil
associated theory.

12th June 2020

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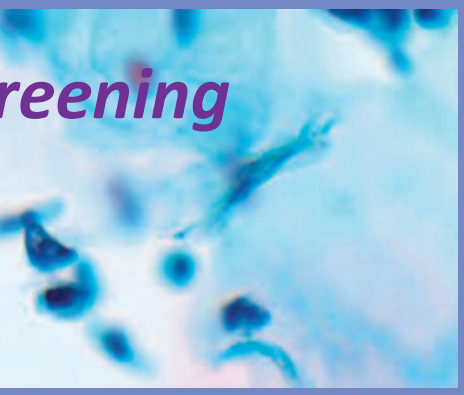

Cervical Cytology for tists

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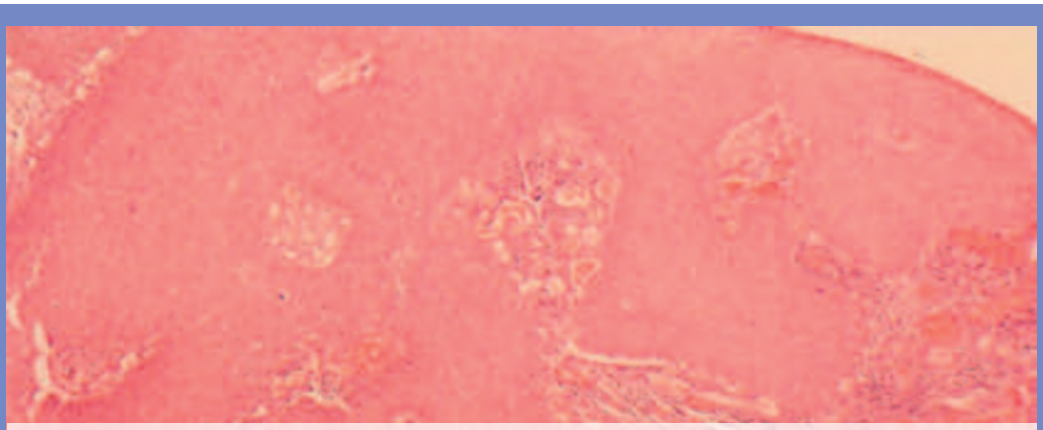

Histopathology

BMS Reporting in Histopathology

Stage A & C GI & Gynae Exam Preparation Day

These days are specifically for those working towards stage A or C part of the BMS reporting qualification

Stage A – 2020 Dates TBC

Stage C – 2020 Date TBC

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This course is suitable for BMSs who intend to train as Histological tissue specimen dissectors, in particular those undertaking the RCPath/IBMS Diploma. It covers all the mandatory elements and a selection of specialist modules including:

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Commencing on 13th & 14th November 2019 with the Introductory Modules, specialist module sessions are scheduled throughout 2020.

et Tel: 0113 2466330 www.nepsec.org.uk

NHS Lothian

Scottish Cytology Training School

Programme 2019-2020

No course fee is charged for Gynae cytology courses to employees of Scottish NHS Trusts

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Courses held at
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Unless states (QEUH) Glasgow

Non-NHS Labs – price on application
All courses are Liquid Based Cytology (ThinPrep)
Courses are CPD accredited

Introductory Course
2nd – 27th September 2019
£1000

Introductory Course Part 2
18th November – 22nd November 2019

Update Course
6th November – 7th November 2019 (QEUH)
4th December – 5th December 2019
5th February – 6th February 2020
£100 per day

Workshops – BMS Medical/Consultant Staff
26th November 2019 (TBC)
£100

ST1 Intro to Cervical Cytology
2nd September – 6th September 2019

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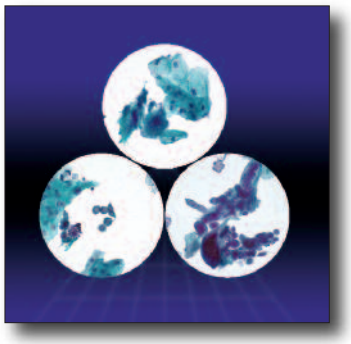

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