A Re-Audit of Supplementary Reports in a Tertiary Hospital: Continuing the Audit Cycle

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Background

The National Histopathology Quality Improvement Programme (NHQI) recommends that addendum reports be reviewed by laboratories regularly.[1] A prior audit performed in 2013 in our department found that 5.5% of supplementary reports would have been more appropriately recorded as corrected/amended.[2] This was in keeping with internationally published literature that suggested similar rates of 5.6%.[3] The NHQI recommends a target for corrected/amended reports as 1% or less of all histology and cytology cases.[1] The accurate coding of reports is essential for monitoring our compliance with this standard.

We aimed to assess the appropriateness of the categorisation of supplementary reports in our department, and to track the turnaround times for these reports as a secondary objective.

Types of addendum report:[1]

- **A supplementary report (Q020)** is issued when new information becomes available after the initial report has been authorised.
- **A corrected report (Q022)** is issued when transcription, patient identification, specimen site, or a minor interpretive error, but without a change to the diagnosis that would change patient management
- **An amended report (Q021)** is issued when a change to the pathological interpretation occurs that may give rise to a change in a patient's treatment and/or prognosis.

Data Collection

P-codes from the NQAIS-Histopathology data coding system were used to extract a list of histology and cytology reports to be reviewed from the St. Vincent's University Hospital laboratory information system.

Baseline Data and Analysis

A total number of 315 supplementary reports met our inclusion criteria over the period of March-April 2025. Our review identified 15/315 (4.8%) total records that were potentially inappropriately categorised as supplementary reports (see table 1.).

There were 9/315 records separately identified that, while there was novel diagnostic information present in the supplementary report, the original report pre-empted this information with phrases such as "further levels pending, supplementary report to follow" and "additional immunohistochemistry is in progress". As clinicians were primed to anticipate further diagnostic information and no "error" occurred, we felt that it would not be accurate to upgrade the categorisation to a corrected/amended report in these instances.

We calculated the turnaround times for supplementary reports as follows (see chart 1.)

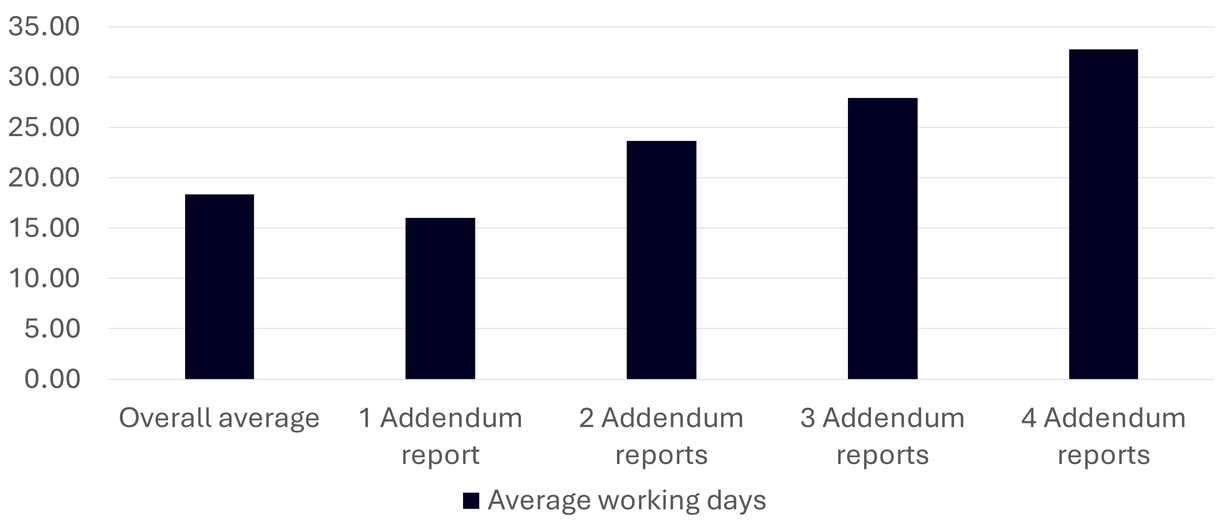

Chart 1. Average working days from receipt of specimen to authorisation of final addendum report

?Amended/Corrected reports					
Case No.	Suggested change	No. of supplementary reports	Reason for supplementary report	Original diagnosis/pathological information relevant	Diagnosis post supplemental
1	?Amended	1	Levels	D - Normal colonic mucosa	Tubular adenoma - low grade
2	?Corrected	2	MDT Discussion, Molecular	Favouring serous carcinoma	Definitive subtyping should be performed on subsequent resection
3	?Amended (originally corrected)	1	IHC	ECL cell hyperplasia	well differentiated neuroendocrine tumour grade 1
4	?Corrected	1	MDT Discussion	Small cell favouring primary lung	Likely metastatis, cannot outrule lung primary
5	?Corrected	1	Revising margins	Margins not present	Margins: 1.5mm, Invasive 3.2mm
6	?Corrected	1	Levels	Normal duodenal mucosa	Lymphangiectasia
7	?Corrected	1	Clarifying grade	Grade not included	Grade 2
8	?Corrected	1	IHC	C5 Malignant	C4 Suspicious
9	?Corrected	1	Margins	No comment on certain margins	Margins provided
10	?Corrected	1	Reassessed	No information regarding re-excised margin	The new margin appears clear by at least 2mm.
11	?Amended	2	IHC, MDT	Metastatic poorly differentiated adenocarcinoma	Mesothelioma or atypical mesothelial proliferation
12	?Amended	1	IHC, ISH	Amyloid deposition	Raises possibility of light chain deposition disease
13	?Amended	1	Levels, IHC	A + B - Markedly atypical basal cells, denuded epithelium	A + B - CIS
14	?Corrected	1	Missing margins	Posterior: <1mm, Medial: 2mm, Superior: 1mm	Posterior: < 1mm, Medial: 2mm, Superior: 1mm The remaining margins appear clear by at least 2mm
15	?Corrected	1	Correction	Breslow thickness =	Breslow thickness = 0.3mm

Table 1. Breakdown of potentially inappropriately categorised reports.

Audit Year	% Potentially Inappropriate	% Appropriate
2013	**5.5%**	94.5%
2025	**4.8%**	95.2%

Table 2. Comparison with prior 2013 audit

Improvements

Each potentially inappropriate supplementary report will be reviewed during our department's quality assurance meeting. An educational session/discussion about the identified cases and current guidelines regarding addendum reports will be organised and addendum reports will be re-audited after 1 year.

Conclusion

While a modest improvement in the percentage of potentially inappropriate addendum reports was identified when compared to the previous 2013 audit, ongoing review of addendum reporting is important for ensuring compliance with target departmental error rates and ensuring agreement amongst pathologists regarding appropriate use of each type of addendum report.

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Unlocking Insights: Exploring the Harmony Between Urine Cytopathology and Histopathology

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Background

The correlation between urine cytopathology and histopathology is crucial for accurate diagnosis and treatment planning. Standardized guidelines, such as the Royal College of Pathologists "Tissue Pathways for Diagnostic Cytopathology," provide benchmarks for assessing this correlation.

Criteria

According to the standard set by the Royal College of Pathologists' document "Tissue Pathways for Diagnostic Cytopathology," which was implemented from October 2019, the expected correlation with histological outcomes (where available) for all cases classed as suspicious of malignancy or malignant (>90% of those identified with histology) • correlation with histological outcomes (where available) for all other cases (>90%)

Objective

This audit aims to investigate the correlation between urine cytopathology and histopathology, specifically focusing on cases from 2022 and 2023, and evaluate adherence to the guidelines outlined in the Royal College of Pathologists' document.

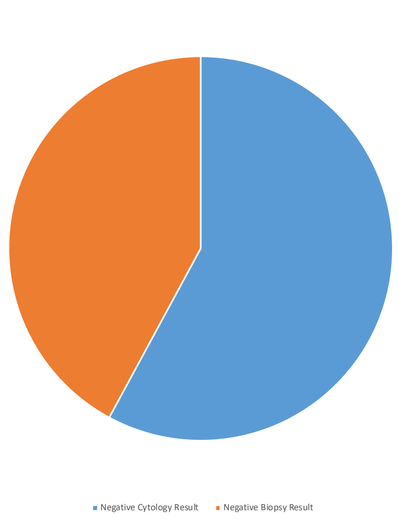
Methods

A total of 23 cases from 2022 and 2023 were included in the audit. The correlation between cytology and histopathology results analyzed according to the criteria set by the Royal College of Pathologists' guidelines. The audit was conducted in accordance with these guidelines to ensure consistency and accuracy.

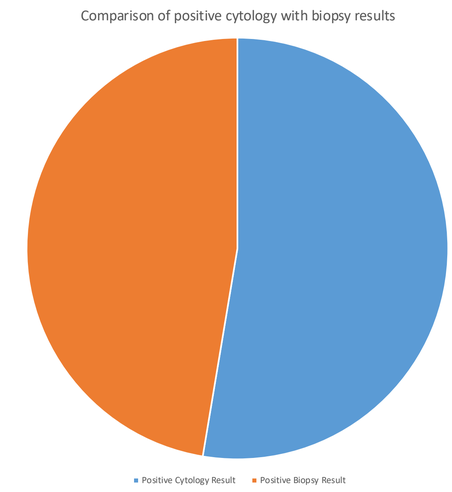
Results

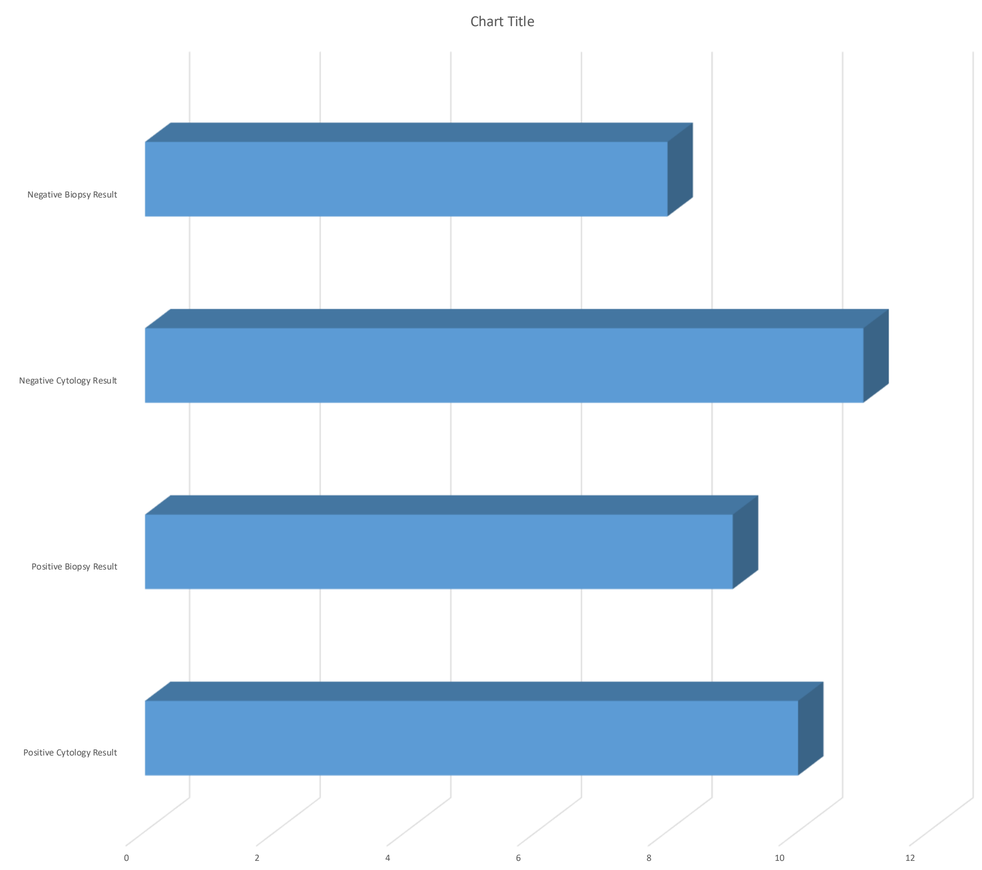
Among the 12 cases with negative cytology results, 83.3% were confirmed negative on tissue biopsy, slightly below the expected correlation rate (>90%). Conversely, all 5 cases diagnosed as carcinoma on cytology were confirmed malignant on tissue biopsy, demonstrating a strong correlation in positive cytology results. For cases with atypical cells on cytology, 83.3% were malignant on biopsy, with one case showing a discrepancy.

Comparison of negative cytology with biopsy results



Comparison of positive cytology with biopsy results





Conclusion

The audit reveals a generally strong correlation between urine cytopathology and histopathology, particularly in cases with positive cytology results. However, there were discrepancies observed in cases with negative cytology results and atypical cells, highlighting the importance of follow-up histopathology. Recommendations include continuous monitoring and further training for pathologists to enhance diagnostic accuracy, ensuring improved quality assurance in urine cytopathology and histopathology correlation

References

Royal College of Pathologists. (2019, October). Tissue pathways for diagnostic cytopathology. Retrieved from https://www.google.com/url?sa=t&source=web&rct=j&opi=89978449&url=https://www.rcpath.org/static/b328ab3d-f574-40f1-8717c32ccfc4f7d8/G086-Tissue-pathways-for-diagnostic-cytopathology.pdf&ved=2ahUKEwi6our8_PmEAxURV0EAHfw6B_EQFnoECCAQAQ&usg=AOvVaw0gdsXwzD2uYH6untrGqQwM

Assessment of Histopathological Reporting Standards in Colorectal Resections

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Background

Datasets provided by the Royal College of Pathologists outline fundamental data elements essential for inclusion in histology reports. The 2007 Dataset for Histopathological Reporting of Colorectal Cancer (2nd Edition) introduced specific reporting criteria for three vital prognostic factors: Median number of lymph nodes, frequency of peritoneal involvement and frequency of venous invasion.

Objective

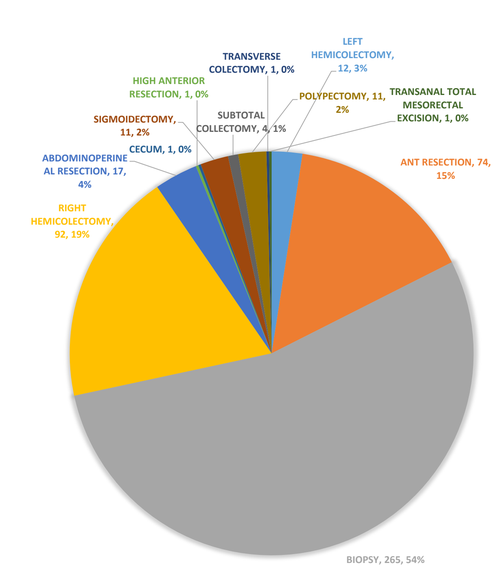
Our objective is to assess the department's ability to meet these stringent reporting standards.

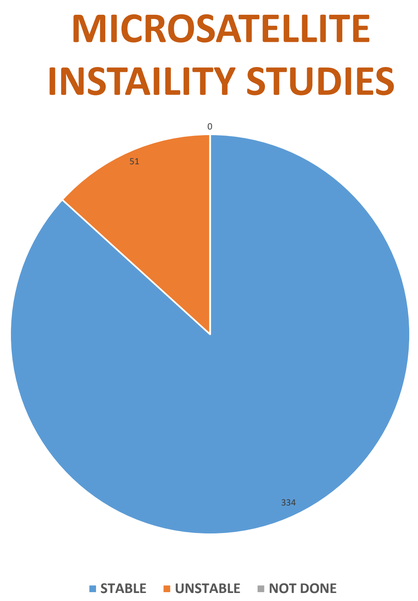
Methods

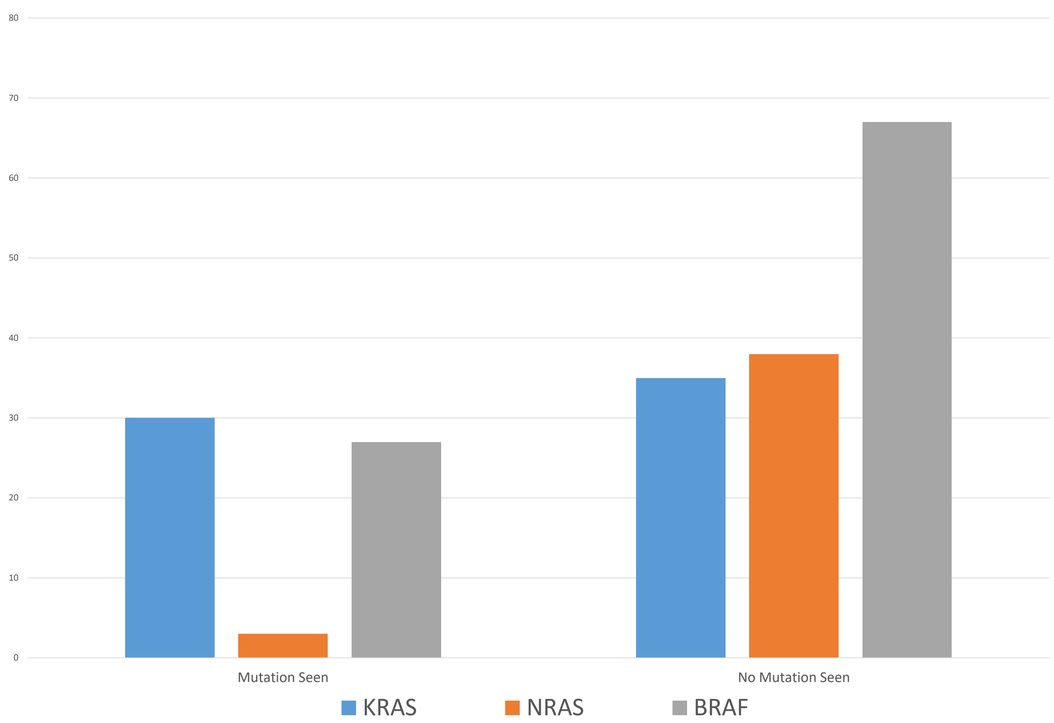
We conducted a retrospective study of cases covering the period from January 1, 2022, to March 16, 2023, encompassing a total of 133 colon, 92 rectal resections and 265 biopsy specimens

Results

- In a study of 225 colon and rectal cancer resections (92 rectal and 133 colonic specimens) from January 2022 to March 2023, findings revealed variations in lymph node counts and rates of metastatic carcinoma.
- Average number of lymph nodes was 23 (median 18). Lymph node count range was 8-62. In cases with lymph-node number less than 15, extensive tissue sampling was done for the search of more lymph-nodes but these attempts were unsuccessful, because these patients were post neo-adjuvant chemotherapy.
- Extramural venous invasion was present in 29% of cases while intramural venous invasion was seen in 4% of cases.
- 28% of cases exhibited peritoneal involvement.
- Out of 21 treated cases, 7 achieved TRG1, and 14 achieved TRG2-3.
- MSI status was checked in 385 cases and it was unstable in 51 cases (15% of cases). 47 out of 51 cases (92%) showed loss of expression of MLH-1 and PMS-2, two cases showed loss of MSH-6 in addition to the loss of MLH1 and PMS2, two cases showed loss of PMS-2 only and one case showed loss of MSH-6 only.
- In cases with loss of MLH1-PMS2, BRAF analysis was performed. The presence of BRAF V600E mutation indicates a sporadic tumour. BRAF mutation was seen in 27 cases (29% of cases).
- If BRAF mutation is not identified, MLH1 hyper-methylation studies are done for those cases. In 5 cases, MLH1 promotor hyper-methylation analysis was performed. Of these hyper-methylation was identified in 2 cases indicating a sporadic tumor. The other 3 cases were referred to the genetic service for Lynch syndrome evaluation.
- KRAS gene mutation status was checked for 65 cases. In these 65 cases mutation was seen in 30 cases (46% of cases).
- NRAS gene mutation status was checked for 41 cases. In these 41 cases, mutation was seen in 3 cases (7% of cases). The presence of a KRAS/NRAS activating mutation indicates non-sensitivity to anti-EGFR therapy with a decreased likelihood of response to anti-EGFR monoclonal antibody therapy.







Conclusion

In summary, the reporting of these colorectal tumors adhered to the established acceptable standards, affirming the department's commitment to maintaining high-quality reporting practices.

A Re-Audit of the Change in Volume of Breast Pathology Workload in University Hospital Waterford Histopathology Department

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National Histopathology QI Programme NQAIS Data

Background

In 2021, an audit of the increase in workload for the breast pathology team was carried out in **University Hospital Waterford**. It allocated a workload score for each case using the Royal College of Pathologists draft document for consultants (March 2019) advising on best practice in staffing and workload for histopathology and cytopathology departments.

In 2024, the Royal College of Pathologists published an updated draft of this document[1], considering feedback from the previous draft. This **re-audit** is designed to further probe the workload of the breast pathology department in University Hospital Waterford, to compare the workload received in 2024 and to re-score the 2013 & 2020 data using the updated document published in 2024.

Baseline Findings

This initial audit showed a significant increase in workload between 2013 & 2020 (overall reporting score increase by 33.2% & resection reporting score increased by 63.6%).

As the audit in 2021 showed a significant increase in workload between 2013 & 2020, and the **breast pathology service has continued to perceive a significant increase in volume and complexity of cases**. Breast specimens require a quick turnaround time for discussion at MDT and treatment initiation, and as a result take priority at consultant reporting level. An unmanageable volume of breast pathology increases the chances of an adverse event in reporting of the specimens and can cause a delay the reporting of non-breast pathology, which can be **detrimental to patient care.**

Measure

Data was obtained from the Laboratory Data manager which had been compiled from the hospital laboratory database system (Apex) of every breast pathology case processed in the UHW lab in 2024. This included **all breast core biopsies, stereotactic biopsies, wide local excisions, mastectomies, and margins**.

Cases were interrogated to determine the workload score for each case, by examining the types of specimens received using the authorised pathology reports. Once the **2024 cases were scored**, we **retrospectively rescored** the 2013 & 2020 data using the updated 2024 guidelines.

Data Points	% change in workload (2013 -2020)
Total Number Specimen Pots	30.1%
Total Number Blocks Processed	93.3%
Total Post Neoadjuvant Therapy Cases	236.4%
Total Resection Score	51.1%
Total Biopsy Score	-13.7%
Total Overall Score (Bx + Resection)	22.8%

References

1. Royal College of Pathologists; Best Practice Recommendations: staffing and workload for histopathology and cytopathology departments. January 2024 Draft G107 (Version 5)

Analysis

The overall reporting score per year has increased by 27.8% from 2020 to 2024. The **number of cases increased by 40.8% from 2020 to 2024,** this is a significant increase in cases received in a 4-year period. The total blocks processed per year has increased again by 12.6% from 2020 to 2024, which **requires increased scientist staffing levels in the laboratory.**
There has been a significant increase in **the total biopsy workload score from 2020 to 2024 – 76.7%**, this is a very impactful increase that has shows the increased activity of the breast screening service in University Hospital Waterford and the knock-on effect on the histopathology department. In terms of a specific procedure, **stereotactic biopsies have increased in volume of cases from 2020 to 2023 by 458.3%**. There is also an increase in post neoadjuvant resections received from 2020 to 2024 – 43.2% and these require significantly more time to process and report.

Data Points	% change in workload (2020 -2024)
Total Number Specimen Pots	55.4%
Total Number Blocks Processed	12.6%
Total Post Neoadjuvant Therapy Cases	43.2%
Stereotactic Biopsy Cases	458.3%
Total Resection Score	6.2%
Total Biopsy Score	76.7%
Total Overall Score (Bx + Resection)	27.8%

Improvements

Several improvements were recommended following the results of this re-audit. Firstly, **intradepartmental communication of audit results and open departmental discussion** on possible improvements to manage the increasing workload.
Secondly, **liaise with surgical and radiology colleagues** regarding the increase in stereotactic biopsies and the possible increase in turnaround times due to an increasing workload resulting from a significant increase in the number of stereotactic biopsies that are carried out, while ensuring no negative impacts on patient care.
Thirdly, to identify a **quality improvement standard** which can be implemented to ensure patient safety and ongoing efficiency of processing and reporting; possibilities include an increase in staffing levels to meet the increasing workload requirements.

Control

There continue to be **unmodifiable factors** that contribute to the increased workload that we are seeing from 2020 to 2024 (e.g. population increase & aging, increased patient self-screening, updated surgical techniques).
These trends are contributing to an **unmanageable workload** which could **compromise patient safety** and the efficiency of the laboratory turnaround times for breast pathology and other specialities indirectly. **Increased staffing** for consultant histopathologists & histology lab scientists are urgently required.
This re-audit **closes the audit loop** that was initiated with the first audit of the breast pathology workloads.

Audit (Re-audit) of Intradepartmental consultation (Q006) Practice in Postmortem Reporting.

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Background

Intradepartmental consultation [IDC] occurs when a consultant pathologist seeks a second opinion from another consultant pathologist within their department or within their regional hospital network on a case prior to authorization of the final report. IDC is one of the key quality indicators (KQI) of the National Histopathology Quality Improvement Programme (NHQIP) of the Faculty of Pathology, RCPI. IDC is also included and reported on in monthly Hospital and Patient Safety Indicator Reports. The target set for IDC of autopsy cases is 1%.

Baseline Findings

Baseline data (prior audits; 2021-2023 and 2014-2019) showed rates of IDC recorded on the laboratory information system of 1.48 and 0.59% respectively.

Criteria range; IDCs of postmortem reporting should ideally approach 1% of all autopsy cases.
National Histopathology Quality Improvement Programme, 11th National Data Report (1 Jan - 31 Dec 2023).

Measure

Sample selection

Autopsies conducted at Galway University Hospital that underwent IDC in 2024 were identified by search of the laboratory Information system (Apex) for the quality code Q006. Reports were reviewed either on the Histopathology ('P') drive online or in hard copy form to identify the nature of the consultation query.
Outcome of the audit was tabulated and the overall percentage of IDC within autopsy reporting was determined.

Analysis

A retrospective audit of all autopsy cases coded with Q006 from 2024, and baseline data from 2021-2023, was tabulated below:

YEAR	Q006	Total no. of cases	Percentage Q006
2024	9	370	2.43
2023	6	405	1.48
2022	12	444	2.70
2021	10	433	2.31
Total	37	1652	2.24

Out of the 37 cases coded with Q006, the nature of the consultation was documented in 30 cases, yielding a total of 35 queries.

Out of the 35 documented queries, 34% related to upper GI /liver /Spleen, 23% to Pulmonary, 14% to Cardiovascular, 11% to Renal/ Bladder, 6% to Lymph node, 3% to Bone marrow, 3% to Endocrine, and 6% to Neuropathology. Five of the 37 cases Code Q006 did not specify which specimen underwent IDC.

Organ System	No. of Queries	Percentage (%)
Bone Marrow	1	2.86
Cardiovascular	5	14.29
Endocrine	1	2.86
Lymph Node	2	5.71
Pulmonary	8	22.85
Renal/Bladder	4	11.43
Upper GI/Liver/Spleen	12	34.29
Neuropathology	2	5.71
Total	35	100%

Table : Breakdown by Organ System in which queries arose prompting IDC

Improvements

Rates of IDC recorded on the laboratory information system range from 1.48 – 2.70 per year, with an average of 2.24 over the 4 years of the 2024 audit and baseline data (prior audit). Consultation between colleagues may also occur on autopsy cases without formal quality coding of same.
IDC on autopsy cases occurs within the department as per NHQIP guidelines. The Q006 target of 1% was achieved within the audit. The 2024 audit data is an improvement from both prior audits (2021-2023 and 2014 – 2019) which showed an average IDC rate of 1.48 and 0.59% respectively, possibly reflecting increased awareness of NHQIP guidelines.

Control and Recommendations

The rate of IDC on autopsy cases was above target over the 4 year period 2021-2024.
Continue to raise awareness that the Q006 of autopsy cases is a KQI of the NHQIP and encourage documentation and coding of same when it occurs.

Incidence and follow-up of gland crowding in ambulatory gynaecology clinic endometrial samples.

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BACKGROUND

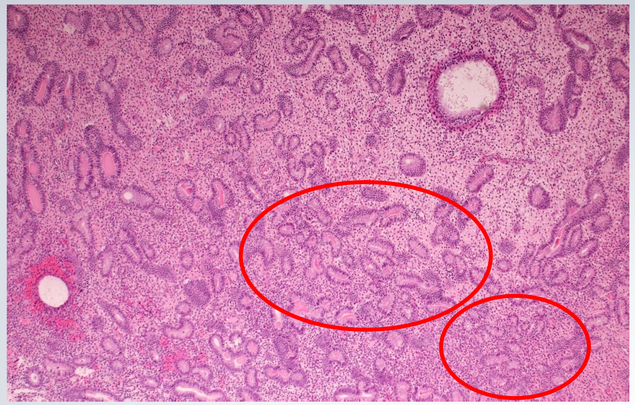
Premalignant endometrial lesions, such as atypical endometrial hyperplasia or endometrial intraepithelial neoplasia, can be diagnosed using specific criteria to include glands/stroma ratio >1 and nuclear and/or cytoplasmic features that differ between architecturally abnormal glands and normal background glands.[1] However, localized groups of crowded endometrial glands may not fulfill all of the criteria and are interpreted as ambiguous, and may be reported as gland crowding.

Previous literature from over 70,000 cases has found an incidence of 0.3% of gland crowding. Of these, follow-up sampling at 6-12 months showed 77% with benign endometrium, 19% with pre-malignant lesions and 4% with carcinoma. [2]

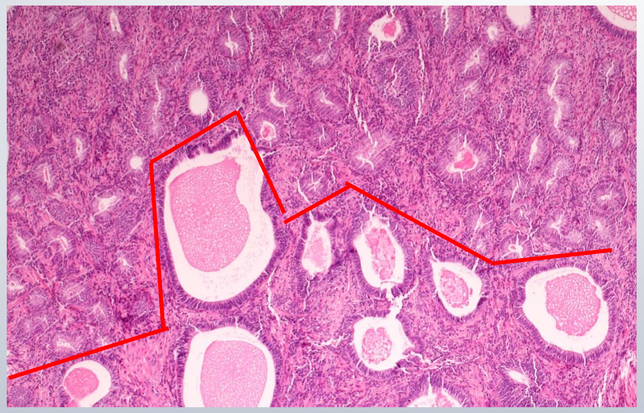
We evaluated the incidence of gland crowding and results of follow-up sampling from the first two quarters of 2024 ambulatory gynaecology clinic endometrial samples at SUH.

MATERIALS AND METHODS

Endometrial samples submitted to SUH histopathology laboratory in the first two quarters of 2024 with intradepartmental histologic diagnostic consensus were identified by CoPath and NQAIS Histopathology search. Those with ‘gland crowding’ or ‘focal gland crowding’ in the report and coded Q006 were flagged for audit. Age, symptoms, hysteroscopy and transvaginal sonography findings, medical record review, histology and follow-up were anonymously tabulated.



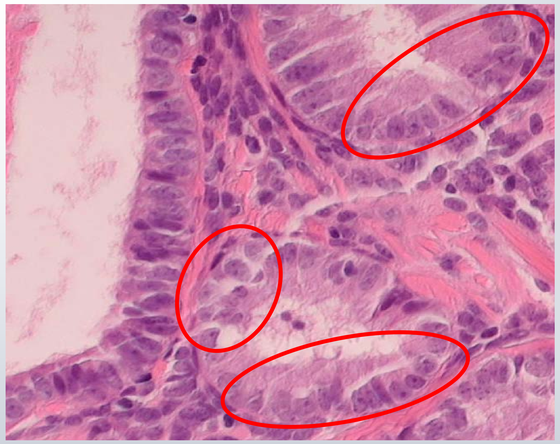
Focal gland crowding, medium power, H & E stain.



Atypical hyperplasia (above red line, demarcated in appearance from dilated normal glands below red line) medium power, H & E stain.

RESULTS

Patients (n=310) ranged in age from 29 to 73 years (m=51) and had symptoms of post-menopausal bleeding (129), menorrhagia (98), and metrorrhagia (61) with the remaining having no symptoms documented on histology requisition. Twenty-three (7.4%) had focal gland crowding. All were reviewed with consensus at intradepartmental consultation. Of 15 cases with follow-up sampling to date (at 6-12 months), one had atypical hyperplasia, two cases had hyperplasia without atypia, one had persistent focal gland crowding, 10 had no further gland crowding or other lesion and one sample was non-diagnostic with insufficient material.



Cytologic atypia, high power, H & E stain.

CONCLUSIONS

Utilisation of the term gland crowding is useful when histologic criteria for endometrial hyperplasia are not fully met. Repeat follow-up sampling of women with focal gland crowding on initial endometrial Pipelle or curettage may show more definitive premalignant endometrial lesions in up to 20% of cases.

ACTIONS COMPLETED

- **Cases with reported gland crowding have been audited to ensure follow-up has been scheduled.**
- **Local ambulatory gynaecology MDT formed to discuss these cases (Q017).**

ACTIONS PLAN

- **Continue using gland crowding terminology and recommending re-sampling at 6-12 months.**
- **Further audit of these cases into the future.**

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2. Huang EC, Mutter GL, Crum CP, Nucci MR. Clinical outcome in diagnostically ambiguous foci of 'gland crowding' in the endometrium. Mod Pathol. 2010 Nov;23(11):1486-91.

Rising Workload and Diagnostic Complexity in Histopathology and the Impact on Turnaround Times in Ireland

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Background

The Irish National Histopathology Quality Improvement (NHQI) Programme collects data in the form of procedure codes (P codes), quality codes (Q codes) and metrics regarding workload, turnaround times and other key quality indicators (KQI) relating to histology, cytology, and autopsy cases. The Programme recommends turnaround time (TAT) targets of 5-10 days depending on specimen type.

P codes	Specimen type	Turnaround time targets
P01	Small biopsy	80% of cases ≤ 5 days
P02	GI endoscopic biopsy	80% of cases ≤ 7 days 100% of cases ≤ 10 days
P03	Cancer resection	80% of cases ≤ 7 days
P04	Non-biopsy other	80% of cases ≤ 7 days
P06	Non-Gynae Cytology FNA	80% of cases ≤ 5 days
P07	Non-Gynae Cytology Exfoliative	80% of cases ≤ 5 days

Methods

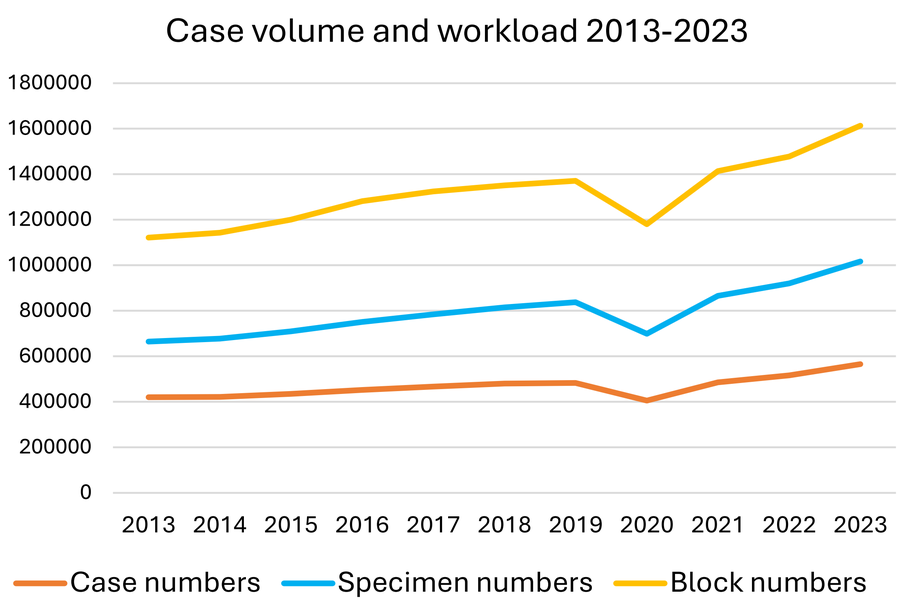
A review of national histopathology data (January 2013–December 2023) examined workload in 28-33 laboratories which included the number of cases, specimens, special stains, immunohistochemical (IHC) stains, and TAT figures. Statistical analysis was performed using SPSS Statistics, utilizing linear regression, compound annual growth rate and Pearson correlation analysis. Statistical significance was set at $p < 0.05$.

Results

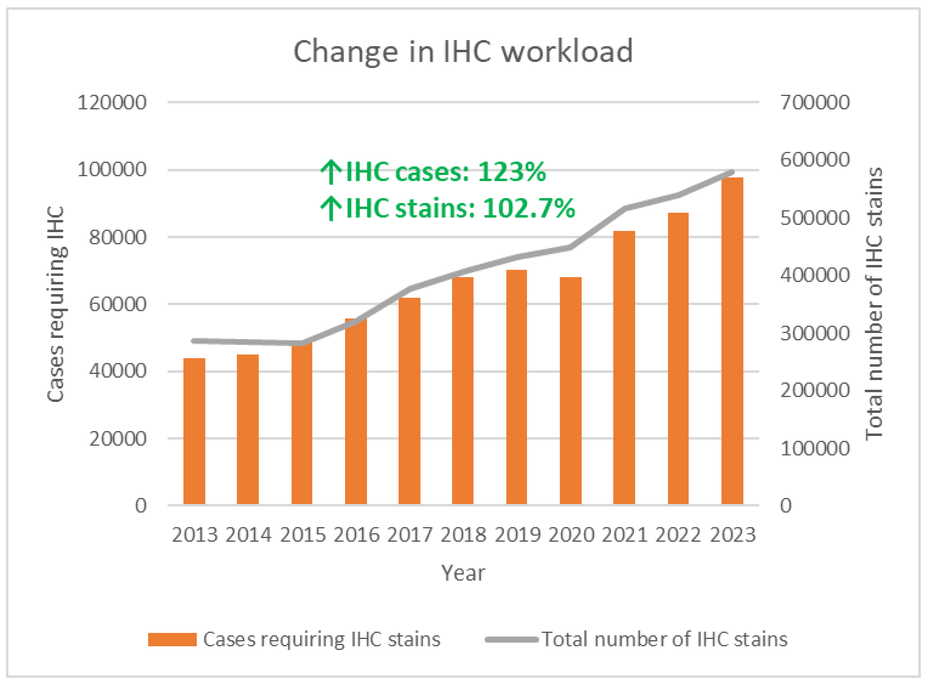
Volume

	2013	2018	2023
Cases	420790	479856	565669
Specimens	664799	815728	1016830
Blocks	1121696	1351243	1613499
All Stains	2440966	3094877	3855950
IHC stains	285660	407637	579035
H&E stains	2013658	2544028	3125331

- Case numbers increased by **34.4%** (**n = 420,790** to **n = 565,669**)
- Specimen and block numbers grew by **53.0%** (**n = 664,799** to **n = 1,016,830**) **and 43.9%** (**n = 1,121,696** to **n = 1,613,499**), respectively
- Average specimen number per case increased from **1.6 to 1.8** (R^2=0.977, p<0.01), and the average block numbers per case increased from **2.7 to 2.9** (R^2=0.709, p<0.01).

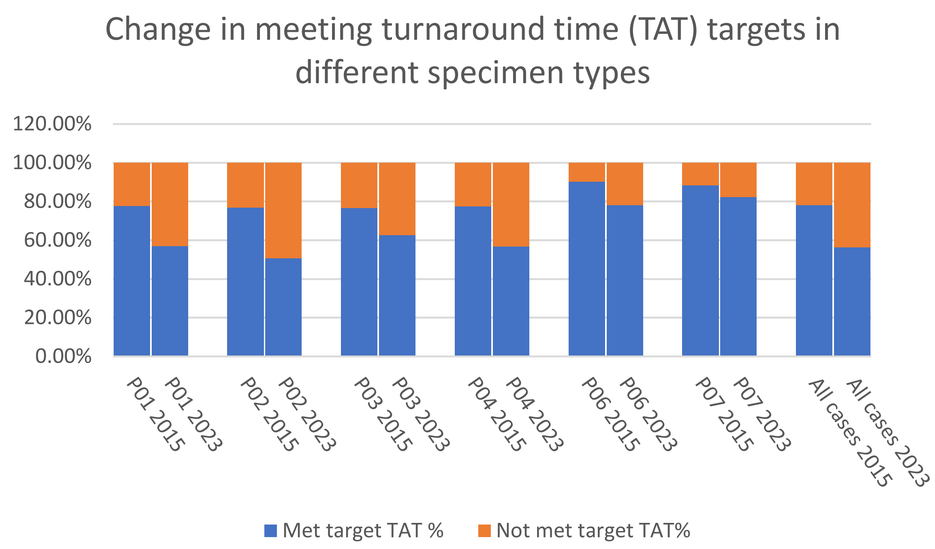


Immunohistochemistry



- There was a **122.5%** increase in cases which had IHC stains carried out (**n = 43,865** to **n = 97,593).**
- Total number of IHC stains performed rose by **102.7%** (**n = 285,660** to **n = 579,035**).
- Average IHC stains per case did not show a significant change, fluctuating between 5.7-6.6 (R^2=0, p=1)
- The proportion of cases utilizing IHC rose from **10.4% to 17.3%**.
- The compound annual growth rate (CAGR) of IHC stain number (7.3%) significantly outpaced that of total cases (3.0%).

Turnaround time



- In 2015, exfoliative cytology and FNA cytology were the only specimen types that met the national turnaround time (TAT) targets, while all other specimen types remained slightly below target.
- By 2023, the overall percentage of cases meeting TAT targets had **declined from 78.4% in 2015 to 56.4%.**
- In 2023, exfoliative cytology was the only specimen type to meet the target, with all other categories falling short.
- The sharpest decline in TAT was observed in gastrointestinal (GI) endoscopic biopsies

Conclusion

- Case numbers have grown by over a third, while specimen and block counts have risen by more than 50% and 40%, respectively.
- The proportion of cases with IHC increased significantly, from 1 in 10 to nearly 1 in 6 cases, indicating a broader application of ancillary testing in routine diagnostics.
- The increasing workload, case numbers, specimens, block numbers and IHC denoting case complexity are having a significant negative impact on TATs across all specimen types.

References

Royal College of Physicians of Ireland, National Histopathology Quality Improvement Programme. (2013–2023). National Data Reports (1st–11th).

Introduction of the Axlab AS-410M and its impact in the cellular pathology lab

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An Academic Partner of Trinity College Dublin

National Histopathology QI Programme NQAIS Data

Background

- The Cellular Pathology Laboratory in Tallaght University Hospital (TUH) has struggled in recent years to produce results in a timely manner in the face of sustained service expansion and chronic medical scientist staff shortages.
- Turnaround times (TATs) in TUH have fallen significantly short of the National Histopathology QI programme targets.
- One of the major bottlenecks in the lab was blocks waiting for microtomy. It was one of the most labour intensive areas and relied on qualified medical scientists.
- Measures put in place such as outsourcing, agency staff and offering overtime were unsustainable, they were also increasing the cost of service.
- In April 2025 we purchased an innovative instrument (Axlab AS-410M) which can automate microtomy.
- Funding was supplied by BowelScreen programme to purchase the automated sectioning machine (ASM).
- The objectives of the introduction of the ASM: improve TATs, quality of sections being produced, standardise processes as much as possible in preparation for digital pathology in the future

Measure

- TATs are extracted from Winpath LIS, monitored and reported monthly
- TAT data is also uploaded to NQAIS-Histopathology each month
- To assess progress, performance data was collected before the ASM was implemented, during the implementation process and is continuously monitored.
- Data collected: Starting out only large surgical blocks were being cut on the ASM so a manual count of the numbers of blocks waiting for microtomy was carried out
- When the tissue types being cut on the ASM was expanded to include GI biopsies the total number of blocks waiting for microtomy was counted.

Analysis

Preparation for delivery of the ASM:

- Identified and freed up space in the lab
- Standardised processes in cut up and embedding
- Selected a team for initial training and to conduct the validation
- Identified and prepared suitable tissue types to trial for the validation
- This preparation was key to us implementing the ASM in only 4 weeks.

Impact

- The ASM had an immediate impact on the number of surgical blocks waiting for microtomy: 1,790 to 950 in 4 weeks
- Some additional training and refinements to processes were needed at the beginning to reduce the numbers of blocks which had to be repeated manually or weren't suitable for cutting on the ASM.
- Numbers of slides being produced will increase because the ASM has to cut levels onto separate slides (particularly significant for GI biopsies).

Analysis contd.

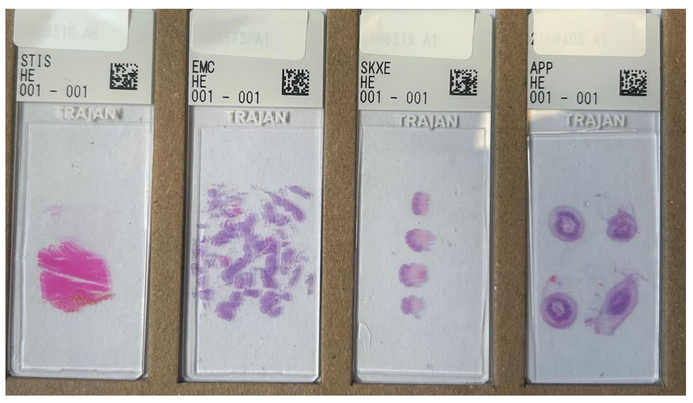
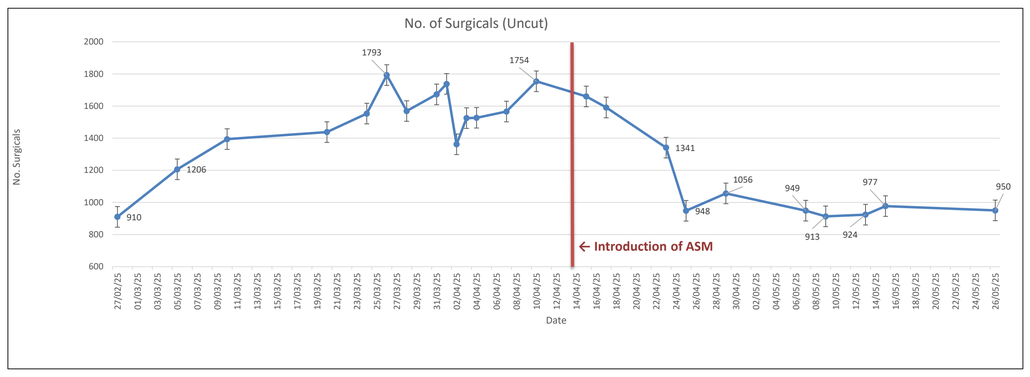


Figure 1 Examples of sections cut on the ASM
A= Soft Tissue
B= Endometrium Curettage
C= Skin Excision
D = Appendix



Graph 1 Number of surgical blocks waiting for microtomy

Improvements

- Interfacing the ASM with the LIS - information required to cut block and patient details contained within a 2D barcode.
- Cut blocks for Immunohistochemistry, including pre-cut control slides.
- Future proofs the laboratory for future implementation of Digital Pathology.

Impact on TAT

- Due to staff shortages, there has not been a considerable reduction in our TAT to date.
- The reasons are multifactorial but primarily due to a shortage of medical scientists.
- Since ASM implementation, we have lost a further 27% of our scientific staff and are currently working at 55% medical scientist capacity. However, having the ASM has allowed us to maintain our TAT, even with this significant staff reduction.
- In time, with full staff complement, we expect a substantial decrease in TAT.

Conclusion

Investment in automation in histology will provide long term stability to the service and improvements in standardisation and quality.

Production

•Completely hands free - Machine can be loaded and operator can walk away
•Machine can work through the night, producing slides from 96 blocks, 6 nights per week (576 extra blocks cut per week)
•None of the downtime associated with manual microtomy due to staff illness, repetitive strain injury.

Financial

- Innovative instrument – first one to be installed in Ireland
- High initial capital cost
- Cost of consumables is high but savings can be made in other areas