SUPPLEMENTARY FIGURE 1

Email sent to randomly selected members of the College of American Pathologists.

Dear all:

You have received this email as part of a list randomly selected from the College of American Pathologists' Directory.

We are conducting a survey on the pathological reporting of colorectal cancer cases. Through this, we hope to assess the difficulties and variations in practice that exist in reporting these cases.

We would like to invite you to participate in the survey, which you can do by clicking on the link below.

Please note that if you do not report these specimens, we'd appreciate it if you would indicate this by clicking on the link and answering the first question only.

Also, if you have previously completed the survey as part of a previous request, please do not do so again.

Regards

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Regarding macroscopic assessment of rectal cancers, which of the following applies to practice in your department (select ONE only):	**Overall** (n=362)	**GI** (n=123)	**Non-GI** (n=239)	**p-value**	**US** (n=226)	**Canada** (n=136)	**p-value**
a. All (or the vast majority of) usual rectal cancers, including those that have had neoadjuvant therapy, are grossed according to the method developed by Quirke et al (i.e. fixing unopened tumour containing segment followed by cross-sectional slicing)	36.5%	35.8%	36.8%	0.84	19.0%	65.4%	<0.0001*
b. All (or the vast majority of) usual rectal cancers, excluding those that have had neoadjuvant therapy, are grossed according to the method developed by Quirke et al.	3.3%	5.7%	2.1%	0.07	1.3%	6.6%	0.006
c. Rectal cancers are not usually grossed using the method developed by Quirke et al.	60.2%	58.5%	61.1%	0.64	79.6%	27.9%	<0.0001*
If the method developed by Quirke et al is NOT routinely used for grossing usual rectal cancers, select the reason(s) from the following list (select ALL that apply):	**Overall** (n=362)	**GI** (n=123)	**Non-GI** (n=239)	**p-value**	**US** (n=226)	**Canada** (n=136)	**p-value**
a. Not applicable (the method developed by Quirke et al is used)	44.1%	54.5%	38.6%	0.004*	28.6%	69.1%	<0.0001*
b. Lack of evidence that this method optimizes assessment of radial margin and TME	13.5%	17.9%	11.2%	0.08	18.6%	5.1%	<0.0001*
c. Increased turnaround time associated with prolonged fixation required for this method	30.1%	33.3%	28.3%	0.33	42.7%	9.6%	<0.0001*
d. Inability to assess tumor size and macroscopic characteristics	28.1%	26.8%	28.8%	0.70	38.6%	11%	<0.0001*
e. Potential difficulties in finding and counting lymph nodes	23.6%	25.2%	22.7%	0.60	34.1%	6.6%	<0.0001*
f. Other (please specify)	19.9%	16.3%	21.9%	0.21	24.1%	13.2%	0.013*
Regarding assessment of quality of the total mesorectal excision (TME) (select ONE):	**Overall** (n=340)	**GI** (n=105)	**Non-GI** (n=235)	**p-value**	**US** (n=210)	**Canada** (n=130)	**p-value**
a. The quality of the TME is routinely assessed in rectal cancers in our department	68.2%	79%	63.4%	0.004*	55.2%	89.2%	<0.0001*
b. The quality of the TME is assessed in some rectal cancers in our department (depending on who is performing the gross dissection)	11.8%	9.5%	12.8%	0.39	15.3%	6.2%	0.012*
c. The quality of the TME is not routinely assessed in our department	20%	11.4%	23.8%	0.008*	29.5%	4.6%	<0.0001*

Supplementary Table 1: Issues related to gross examination of rectal cancer resection specimens: Survey questions and responses

Note: The percentage of responses for each option is provided in this table. The number of respondents for each question is shown in brackets.

*Indicates p-values <0.05

Regarding the assessment of the radial margin in colon cancers, which of the following best describes your practice (select ONE only):	**Overall** (n=355)	**GI** (n=124)	**Non-GI** (n=231)	**p-value**	**US** (n=228)	**Canada** (n=127)	**p-value**
a. The retroperitoneal "bare area" in ascending and descending colon cancers and the vascular ties in transverse and sigmoid cancers are routinely assessed	69.9%	78.2%	65.4%	0.012*	67.5%	74.0%	0.20
b. The retroperitoneal "bare area" in ascending and descending colon cancers only are assessed	22.5%	15.3%	26.4%	0.017*	24.6%	18.9%	0.22
c. Radial margins are assessed only in those cases where the surgeon indicates a close margin	7.6%	6.5%	8.2%	0.55	7.9%	7.1%	0.783
With regard to your laboratory's practice with regard to opening entirely, colon resection specimens i.e. opening the segment involved by tumour (select ONE only):	**Overall** (n=330)	**GI** (n=116)	**Non-GI** (n=214)	**p-value**	**US** (n=212)	**Canada** (n=118)	**p-value**
a. This is never done.	2.7%	5.2%	1.4%	0.045*	1.4%	5.1%	0.05
b. This is always done, usually without identifying appropriate margins first.	6.4%	6.9%	6.1%	0.77	5.7%	7.6%	0.48
c. This is always done, with identification of appropriate margins first.	83.3%	79.3%	85.5%	0.15	89.2%	72.9%	<0.0001*
d. Specimens are opened when appropriate, for instance with uncertain tumour size/site, post-neo-adjuvant therapy etc.	7.6%	8.6%	7%	0.60	3.8%	14.4%	<0.0001*

Supplementary Table 2: Issues related to colon cancer grossing: Survey questions and responses

Note: The percentage of responses for each option is provided in this table. The number of respondents for each question is shown in brackets.

*Indicates p-values <0.05

Regarding your assessment of the serosa in colorectal cancers, select ALL that apply:	**Overall** (n=389)	**GI** (n=132)	**Non-GI** (n=257)	**p-value**	**US** (n=245)	**Canada** (n=144)	**p-value**
a. Sections to show serosa overlying closest tumor are submitted only if the serosa appears abnormal	8.2%	11.4%	6.6%	0.11	6.5%	11.1%	0.11
b. Sections to show serosa overlying closest tumor are submitted routinely even if the serosa appears normal	86.1%	81.8%	88.3%	0.08	87.8%	83.3%	0.22
c. The closest serosa to the tumor is inked in all resections	68.9%	68.2%	69.3%	0.83	74.7%	59.0%	0.001*
d. The serosa is regarded as a radial resection margin	15.9%	11.4%	18.3%	0.08	21.6%	6.3%	<0.0001*
e. The serosa is routinely assessed in proximal rectal cancer	65.6%	72%	62.3%	0.06	63.3%	69.4%	0.22
Regarding the use of adjunctive fat clearing or node highlighting techniques to increase lymph node yield lymph node yield in your department (select ONE):	**Overall** (n=336)	**GI** (n=118)	**Non-GI** (n=218)	**p-value**	**US** (n=214)	**Canada** (n=122)	**p-value**
a. These are routinely used (at the time of initial grossing) if the prosector feels that he/she has found <12 nodes. If yes, please specify method below:	45.2%	30.5%	53.2%	<0.0001*	46.7%	42.6%	0.47
b. These are routinely used following slide examination if there are <12 nodes. If yes, please specify method:	17.9%	21.2%	16.1%	0.24	15.9%	21.3%	0.21
c. These are NOT used	36.9%	48.3%	30.7%	0.001*	37.4%	36.1%	0.81
With regard to the gross examination, description and blocking of colorectal cancer resections in your department, select ONE of the following:	**Overall** (n=330)	**GI** (n=116)	**Non-GI** (n=214)	**p-value**	**US** (n=212)	**Canada** (n=118)	**p-value**
a. All are done by pathologists' assistants and residents	42.7%	62.1%	32.2%	<0.0001*	39.6%	48.3%	0.13
b. Most are done by pathologists' assistants and residents with the occasional complicated specimen being done by a pathologist	30.3%	25.9%	32.7%	0.21	35.3%	21.0%	0.009*
c. The majority are done by pathologists	15.8%	5.2%	21.5%	<0.0001*	16.0%	15.3%	1.00
d. Other	11.2%	6.9%	13.6%	0.71	9.0%	15.3%	0.1

Table 3: Issues related to colorectal cancer grossing: Survey questions and responses

Note: The percentage of responses for each option is provided in this table. The number of respondents for each question is shown in brackets.

*Indicates p-values <0.05

A colon cancer extends to within 1 mm of the serosal surface with an associated fibroinflammatory and peritoneal reaction (mesothelial hyperplasia and/or fibrin deposition). This is best staged as follows (select one only):	**Overall** (n=389)	**GI** (n=132)	**Non-GI** (n=257)	**p-value**	**US** (n=245)	**Canada** (n=144)	**p-value**
a. pT4a	33.9%	42.5%	29.6%	0.011*	33.5%	34.7%	0.80
b. pT3 without a comment	15.2%	12.1%	16.7%	0.23	18.4%	9.7%	0.022*
c. pT3 with a comment to suggest that there could be a breach of the peritoneum, and the tumor may behave like a pT4a tumor	50.9%	45.4%	53.7%	0.12	48.2%	55.6%	0.16
In which of the following scenarios, would you assign a stage of pT4 (select ONE only):	**Overall** (n=389)	**GI** (n=132)	**Non-GI** (n=257)	**p-value**	**US** (n=245)	**Canada** (n=144)	**p-value**
a. Sigmoid cancer adherent to but not infiltrating bladder (histology shows no tumor within the adhesion and there is no evidence of diverticular disease)	5.1%	2.3%	6.6%	0.07	5.7%	4.2%	0.51
b. Sigmoid cancer adherent to but not infiltrating bladder with tumor in the adhesion	68.4%	66.7%	69.3%	0.60	71.8%	62.5%	0.056
c. None of the above	26.5%	31.1%	24.1%	0.14	22.4%	33.3%	0.019*

Supplementary Table 4: Issues related to T-staging: Survey questions and responses

Note: The percentage of responses for each option is provided in this table. The number of respondents for each question is shown in brackets.

*Indicates p-values <0.05

Which of the following best describes your practice with regard to lymph node numbers (select ONE only):	**Overall** (n=336)	**GI** (n=118)	**Non-GI** (n=218)	**p-value**	**US** (n=214)	**Canada** (n=122)	**p-value**
a. If fewer than 12 lymph nodes are identified, specimens are re-examined for additional lymph nodes	89.3%	90.7%	88.5%	0.78	87.9%	91.8%	0.26
b. If fewer than 15 lymph nodes are identified, specimens are re-examined for additional lymph nodes	4.5%	6.8%	3.2%	0.13	6.1%	1.6%	0.06
c. Specimens are only re-examined if less that 8 lymph nodes are found	2.7%	1.7%	3.2%	0.41	2.8%	2.5%	0.85
d. Specimens are not re-examined in any of the above situations	3.6%	0.8%	5%	0.05*	3.3%	4.1%	0.69
Regarding your handling of circumscribed tumor deposits in the pericolonic/perirectal fat without residual lymph node tissue (select ONE only)	**Overall** (n=336)	**GI** (n=118)	**Non-GI** (n=218)	**p-value**	**US** (n=214)	**Canada** (n=122)	**p-value**
a. This would be reported as a discontinuous tumor deposit (with or without a comment as to their likely origin) and recorded as pN1c if there are no lymph node metastases	62.8%	72%	57.8%	0.01*	59.3%	68.9%	0.08
b. This would be called a replaced lymph node (pN1a)	37.2%	28%	42.2%	0.01*	40.7%	31.1%	0.08
Regarding your handling of acellular mucin in a regional lymph node from a patient who has not had neoadjuvant therapy, and all other nodes are negative, (select ONE only):	**Overall** (n=336)	**GI** (n=118)	**Non-GI** (n=218)	**p-value**	**US** (n=214)	**Canada** (n=122)	**p-value**
a. Examine deeper levels ± cytokeratin IHC and if negative assign pN0	23.5%	18.6%	26.1%	0.12	23.8%	23.0%	0.86
b. Examine deeper levels ± cytokeratin IHC and if negative assign pN0 with a comment to say that this could represent a nodal metastasis	59.8%	61%	59.2%	0.74	57.0%	64.8%	0.16
c. Nothing further and assign pN0	7.7%	7.6%	7.8%	0.96	10.3%	3.3%	0.02*
d. Assign as pN1 (even if deeper levels or cytokeratin IHC are performed and are negative)	8.9%	12.7%	6.9%	0.07	8.9%	9.0%	0.97

Supplementary Table 5: Issues related to lymph node examination: Survey questions and responses

Note: The percentage of responses for each option is provided in this table. The number of respondents for each question is shown in brackets.

*Indicates p-values <0.05

The serosa is regarded as a resection margin (select ONE only)?	**Overall** (n=389)	**GI** (n=132)	**Non-GI** (n=257)	**p-value**	**US** (n=245)	**Canada** (n=144)	**p-value**
a. Yes	15.9%	11.4%	18.3%	0.08	21.6%	6.3%	<0.0001*
b. No	84.1%	88.6%	81.7%	0.08	78.4%	93.7%	<0.0001*
A resection specimen contains a positive lymph node in which tumor is < 1 mm from the margin but is contained by the capsule of the lymph node. How would you report the radial margin (select ONE only)?	**Overall** (n=336)	**GI** (n=118)	**Non-GI** (n=218)	**p-value**	**US** (n=214)	**Canada** (n=122)	**p-value**
a. Positive	11.3%	15.3%	9.2%	0.09	5.6%	21.3%	<0.0001*
b. Negative	58.9%	48.3%	64.7%	0.004*	74.3%	32.0%	<0.0001*
c. Positive but with a comment to explain the circumstance and that this may not indicate an increased rate of local recurrence	29.8%	36.4%	26.1%	0.049*	20.1%	46.7%	<0.0001*

Supplementary Table 6: Issues related to resection margin status: Survey questions and responses

Note: The percentage of responses for each option is provided in this table. The number of respondents for each question is shown in brackets.

* Indicates p-values <0.05

Regarding the reporting of lymphovascular invasion (LVI), both small vessels and larger veins, which of the following applies to your practice (select ONE only)	**Overall** (n=333)	**GI** (n=117)	**Non-GI** (n=216)	**p-value**	**US** (n=213)	**Canada** (n=120)	**p-value**
a. Report all forms of LVI under the single heading "lymphovascular invasion" and do not specify or comment further.	52.9%	41%	59.3%	0.001*	60.6%	39.2%	0.0002*
b. Report all forms of LVI under the single heading "lymphovascular invasion" but specify (elsewhere in report) the type of LVI (large vessel/venous vs small vessel) and its location (intramural vs extramural).	23.4%	25.6%	22.2%	0.48	15.0%	38.3%	<0.0001*
c. Report all forms of LVI under the single heading "lymphovascular invasion" but specify (elsewhere in report) the type of LVI (large vessel/venous vs small vessel) but not its location.	12.9%	14.5%	12%	0.52	13.6%	11.7%	0.61
d. Checklist modified to allow the reporting of both the items "lymphovascular invasion" (for small vessels) and venous invasion (for larger veins)	10.8%	18.8%	6.5%	0.001*	10.8%	10.8%	0.99
Regarding the use of elastin stains in the assessment of venous invasion, which of the following applies to your practice (select ONE only):	**Overall** (n=332)	**GI** (n=117)	**Non-GI** (n=215)	**p-value**	**US** (n=213)	**Canada** (n=119)	**p-value**
a. Elastin stains are routinely performed on MOST or ALL tumor blocks	5.1%	9.4%	2.8%	0.009*	0.5%	13.4%	<0.0001*
b. Elastin stains are routinely performed on SOME (at least one) tumor block(s)	6.9%	9.4%	5.6%	0.19	1.9%	16.0%	<0.0001*
c. Elastin stains are not performed or performed only when features suspicious for venous invasion are identified on H&E	88%	81.2%	91.6%	0.005*	97.7%	70.6%	<0.0001*
Regarding the use of immunohistochemistry in the assessment of lymphovascular and venous invasion, which of the following applies to your practice (select ONE):	**Overall** (n=332)	**GI** (n=117)	**Non-GI** (n=215)	**p-value**	**US** (n=213)	**Canada** (n=119)	**p-value**
a. Vascular and lymphatic markers (e.g. CD31 and D240) are routinely used	1.2%	2.6%	0.5%	0.09	0.0%	3.4%	0.007*
b. Vascular and lymphatic markers (e.g. CD31 and D240) are used only when necessary in equivocal cases	68.7%	76.9%	64.2%	0.017*	65.3%	74.8%	0.07
c. Vascular and lymphatic markers (e.g. CD31 and D240) are never used	30.1%	20.5%	35.3%	0.005*	34.7%	21.8%	0.014*

Supplementary Table 7: Issues related to lymphovascular invasion: Survey questions and responses

Note: The percentage of responses for each option is provided in this table. The number of respondents for each question is shown in brackets.

*p values <0.05

In which of the following situations do you report the presence or absence of tumor budding (select ONE only)?	**Overall** (n=332)	**GI** (n=117)	**Non-GI** (n=215)	**p-value**	**US** (n=212)	**Canada** (n=120)	**p-value**
a. Never	69.6%	49.6%	80.5%	<0.0001*	76.4%	57.5%	0.0005*
b. In most or all malignant polyps	8.1%	11.1%	6.5%	0.14	3.8%	15.8%	<0.0001*
c. In most or all malignant polyps and colorectal cancer biopsies	2.4%	2.6%	2.3%	0.88	1.9%	3.3%	0.41
d. In most or all malignant polyps and colorectal cancer resections	13%	23.1%	7.4%	<0.0001*	11.8%	15.0%	0.40
e. In most or all malignant polyps and colorectal cancer biopsies and resections	6.9%	13.7%	3.3%	<0.0001*	6.1%	8.3%	0.45
With regard to the use of keratin IHC in the assessment of tumor budding (select ONE):	**Overall** (n=332)	**GI** (n=117)	**Non-GI** (n=215)	**p-value**	**US** (n=212)	**Canada** (n=120)	**p-value**
a. This is routinely performed	0.3%	0%	0.5%	0.46	0.0%	0.8%	0.18
b. This is often used, particularly in more challenging cases	14.2%	23.1%	9.3%	0.001*	6.1%	28.3%	<0.0001*
c. This is never used	85.5%	76.9%	90.2%	0.001*	93.9%	70.8%	<0.0001*

Supplementary Table 8: Issues related to tumor budding: Survey questions and responses

Note: The percentage of responses for each option is provided in this table. The number of respondents for each question is shown in brackets.

*p values <0.05

Regarding feedback between pathologist and radiologist with respect to rectal cancer cases at your institution, which of the following applies to your practice (select ONE only):	**Overall** (n=352)	**GI** (n=121)	**Non-GI** (n=231)	**p-value**	**US** (n=127)	**Canada** (n=225)	**p-value**
a. This occurs fairly regularly around cases as well as at multidisciplinary case conferences	11.9%	19%	8.2%	0.003*	15.6%	5.5%	0.005*
b. This occurs occasionally as well as at multidisciplinary case conferences	17%	17.4%	16.9%	0.91	17.3%	16.5%	0.93
c. This usually occurs only in the setting of multidisciplinary case conferences	41.2%	45.5%	39%	0.24	40.9%	41.7%	0.88
d. This does not occur	29.8%	18.2%	35.9%	0.001*	26.2%	36.2%	0.049*

Supplementary Table 9: Feedback between pathology and radiologists with respect to rectal cancer cases: Survey questions and responses

Note: The percentage of responses for each option is provided in this table. The number of respondents for each question is shown in brackets.

*p values <0.05