

**PATHOLOGY in
RARE CANCERS**
SUMMARY REPORT

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Summary

Background: Pathology reports set the foundation for successful cancer care. Rare cancers can pose significant challenges to pathologists and it may therefore not always be easy to diagnose them correctly. As recent studies have confirmed, pathologists need to be aware of the potential diagnostic pitfalls and of the potential discordance between initial diagnosis and centralized expert review in rare cancer pathology, especially when taking into account that some of these issues may lead to different treatment plans or prognoses.

Methods: Between 20 July and 31 October 2012, a self-administered multiple choice questionnaire-based survey of pathologists was carried out by the European Society of Pathology (ESP) and the Rare Cancers Europe (RCE) multi-stakeholder consortium, which is led by the European Society for Medical Oncology (ESMO). The survey was conducted online and at the 24th European Congress of Pathology in Prague, Czech Republic. Quantitative data analysis and evaluation were structured by questions and groups of participants. In total, 123 pathologists from 37 countries participated in the survey. More than three-quarters (84%) were from 26 European countries. Almost two-thirds (62%) of the participants were female and more than two-thirds (71%) were above 40 years of age. Over 85% of respondents had more than 6 years of pathology practice.

Results: Of the respondents, about two-thirds (64%) rated the current pathology standards in their respective countries as high or very high but about half of the respondents from eastern and southern European countries said the standards in their countries were average or low (47% and 55% respectively). Less than half (48%) of survey respondents stated they were fully involved in the multidisciplinary medical team caring for the patient and 11% responded that they were "not really involved" or "not involved at all" in the medical team. Less than two-thirds (64%) of respondents stated that they come across a rare cancer case in their daily practice approximately 1-2 times per month or more, whereas more than one-third (36%) replied that they are confronted with a rare cancer case only about 1-2 times per quarter or less. When coming across an "atypical" or "suspicious" case, about three-quarters (75%) of respondents said that they seek a second opinion within their institution, and more than half (58%) seek an expert second-opinion pathology review from another pathology institution. About one-third (34%) of respondents said they do both. However, about one-quarter of pathologists (25%) responded that they do not try to obtain a second opinion from within their institution and more than one-third (42%) do not seek expert advice from another pathology institution. Immunohistochemical stains were reported to be frequently used to identify specific markers by almost 9 in 10 pathologists (88%) who participated in the survey and about 11% of pathologists use them only from time to time. More than two-thirds (68%) of respondents stated that a cancer pathology report should also include information on the cancer prognosis, less than half (48%) felt that information on the response to cancer therapy should also be included, and one-third (33%) believed that treatment recommendations should also be given in the pathology report. About 1 out of 10 respondents (8%) explicitly stated that information on cancer prognosis, response to cancer therapy and treatment recommendations should not be included in the cancer pathology report. About two-thirds (66%) of respondents stated that they frequently keep tumour samples for any further testing, if needed. Less than one-third (30%) of respondents stated that they frequently receive clinical feedback on their pathology reports and about one-third of pathologists (33%) said that they rarely or never obtain any such feedback. Less than one-fifth (16%) of respondents stated that they participate in quality assurance conferences on a daily basis or eve-

ry other day, about one-third (32%) said they do so on a weekly basis, and another third (33%) answered that they participate in such conferences every other week or on a monthly basis. About one-fifth (18%) of respondents stated that they participate in quality assurance conferences less frequently or never. The most frequent recommendation for improving the accuracy of rare cancer pathology stated by survey respondents was better education and training of pathologists (61%); followed by better integration of pathologists into the multidisciplinary medical team (60%); better collaboration within the multidisciplinary medical team (51%); better availability of appropriate diagnostic tools/facilities (50%); better information materials for pathologists (44%); better opportunities to obtain expert second-opinion pathology review from another pathology institution (43%); more international quality assurance programmes (41%); better integration of technological advances into diagnostic practice (37%); more time for each diagnosis (34%); more quality control within their own institution (28%); and better opportunities to obtain a second opinion from other pathologists within their institution (20%).

Conclusions: Because of the comparatively small number survey participants, this survey cannot be considered as being representative of the thoughts and opinions of all pathologists across Europe. However, the results of this survey may help to shed some light on some areas of concern and identify potential solutions. The survey results suggest that current pathology standards in eastern and southern European countries may be lower than in northern and western European countries. The level of involvement of the pathologist in the multidisciplinary medical team and the obtaining of a second expert opinion from within or outside a pathologist's institution may be issues to be addressed. There are quite different views on what should be included in a cancer pathology report. The frequency of participation in quality assurance conferences can differ significantly between pathology institutions. The key recommendations for improving the accuracy of rare cancer pathology are better education and training as well as better integration into, and collaboration within, the multidisciplinary medical team. Joint pathology and oncology education and collaboration programmes could be one way to address those issues.

Keywords: Pathology; Oncology; Rare cancers; Diagnosis; Quality assurance; Health surveys

Background

More than 500,000 people in the European Union are diagnosed with a rare cancer every year. Accounting for more than 20% of all cancers, a total of 186 cancers have been defined as rare by the Surveillance of Rare Cancers in Europe (RARECARE) project. They affect more than 4 million people in the European Union.¹ Evidence also suggests that survival rates for rare cancers are lower than for common cancers.²

Pathology reports set the foundation for successful cancer care. However, many pathologists may be confronted with a specific rare cancer perhaps once or twice in their entire professional career. This is why diagnosing rare cancers accurately can present a real challenge for a pathologist. At the same time, it is extremely important, especially in the field of rare cancers, to combine information from biology, pathology and clinical practice to set up an appropriate treatment plan.

Pathologists need to be aware of the potential diagnostic pitfalls in rare cancer pathology, especially when taking into account that some of these difficulties may lead to different treatment plans or prognoses. A recent study on the pitfalls in neuroendocrine tumour (NET) diagnosis revealed that "neither laboratory tests nor octreoscans are completely reliable diagnostic tools because other clinical disorders or atypical radiological findings may mimic a carcinoid, hence leading to an erroneous NET diagnosis."³

To assess the concordance between primary diagnosis and second opinion, another recent study looked at sarcomas, another group of rare malignant tumours, which has numerous histological subtypes and accounts for around 5% of all rare cancers. After collecting the histological data of 448 patients diagnosed with sarcoma in the French Rhône-Alpes region between March 2005 and February 2006, the study found that "full concordance was reported for only 54% of cases included" and "more than 45% of first diagnoses were declared invalid by the panel of experts conducting the centralized pathological review."⁴

The high rate of partial concordance or discordance between initial sarcoma diagnosis and centralized expert review was also confirmed in a population-based study of more than 2,000 sarcoma patients in three European regions: Aquitaine and Rhône-Alpes (France) and Veneto (Italy). The study systematically compared initial diagnoses with second opinions from regional and national experts and found that "more than 40% of first histological diagnoses were modified at second reading, possibly resulting in different treatment decisions."⁵

In order to better address the diagnostic challenges posed by rare cancers, the European Society of Pathology (ESP) is involved in the Rare Cancers Europe (RCE) multi-stakeholder initiative, which is led by the European Society for Medical Oncology (ESMO) and aims to address issues of particular relevance in rare cancers, also including late or incorrect diagnosis. Together with RCE, the ESP developed a survey to help increase the understanding of rare cancer-related issues and challenges for pathologists and identify potential solutions.

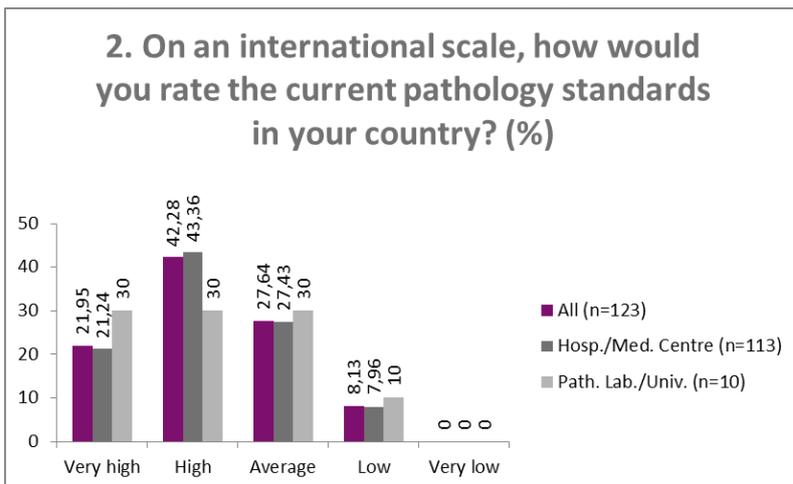
Methods and Participants

The survey was based on a self-administered questionnaire consisting of 11 multiple-choice questions, also inviting participants to add comments. The questionnaire was posted on a SurveyMonkey online platform that was from 20 July until 31 October 2012 and it was distributed as a 2-page paper questionnaire during the 24th European Congress of Pathology, held from 8-13 September 2012 in Prague, Czech Republic. The survey was announced in the summer 2012 issue of the ESP Newsletter, which was disseminated to all ESP members. In addition, the questionnaire was included in the congress bags handed out to the delegates attending the 24th European Congress of Pathology.

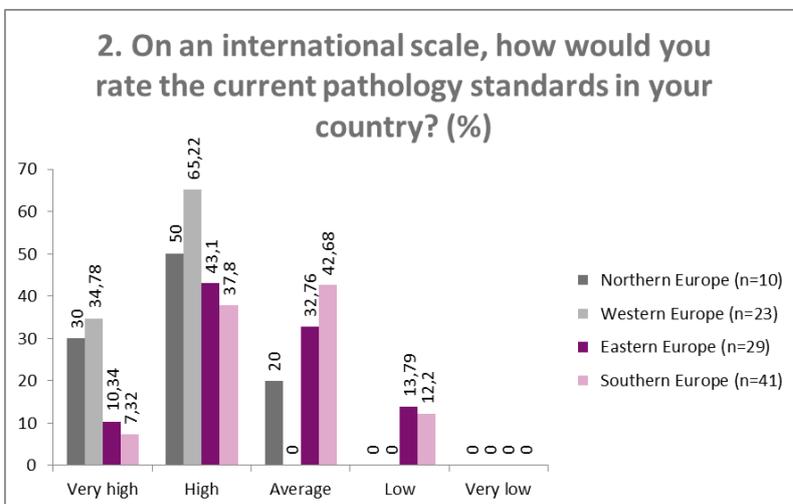
Quantitative data analysis and evaluation were structured by questions and groups of participants, which were subdivided into pathologists working in a hospital or medical centre (HMC) and pathologists working in a pathology laboratory (outside the hospital) or at university (LAB). In total, 123 pathologists (92% HMC, 8% LAB) from 37 countries participated in the survey. Of the pathologists who participated in the survey, 103 (84%) were from 26 European countries (97 HMC, 6 LAB) and 20 (16%) from 11 other countries (16 HMC, 4 LAB). Almost two-thirds (62%) of the participants were female and 38% male. More than two-thirds (71%) of participants were above 40 years of age and more than 85% stated that they have been practicing pathology for more than 6 years, including more than 43% who stated they have been working in this profession for more than 20 years. Corresponding graphs are included in the “Additional Graphs” section further below.

Results

Q2: Pathology standards: About two-thirds (64%) of the respondents stated that the current pathology standards in their respective countries were high or very high, whereas more than one-third (36%) said the standards were average or low. The percentage of pathology standards rated as average or low was significantly higher for eastern and southern European countries represented in this survey (47% and 55% respectively). Detailed graphs illustrating the responses from the individual European countries represented in the survey are included in the “Additional Graphs” section further below.

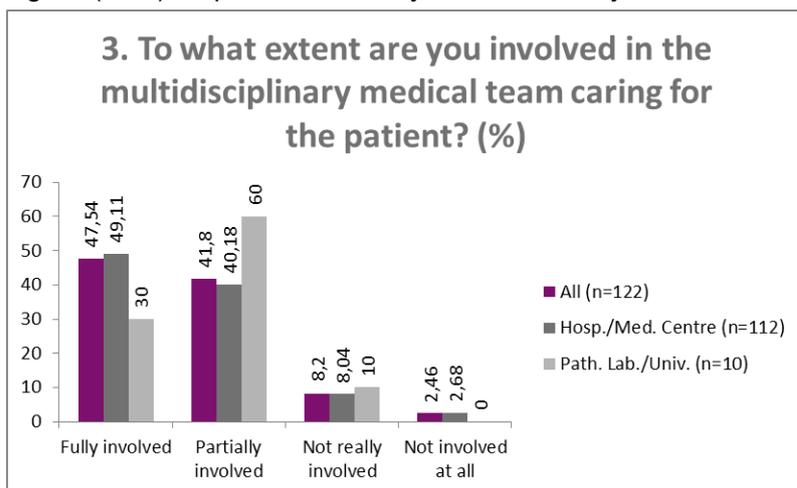


Graph 1) Q2: Pathology standards by group of respondents



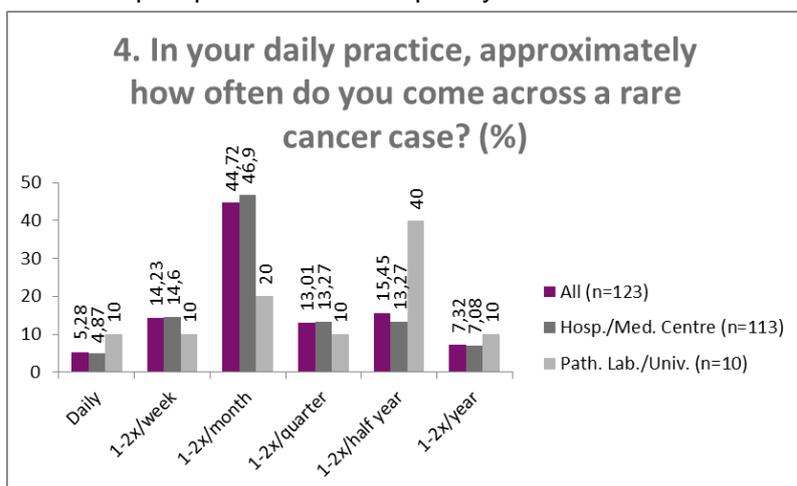
Graph 2) Q2: Pathology standards by European region (according to European regions as used for statistical processing purposes by the United Nations Statistics Division⁶; Southern Europe incl. Turkey. For UN regional map of Europe, see graph 20) below.)

Q3: Level of involvement in multidisciplinary medical team: Less than half (48%) of the survey respondents stated that they were fully involved in the multidisciplinary medical team and about 1 out of 10 pathologists (11%) responded that they were “not really involved” or “not involved at all” in this team.



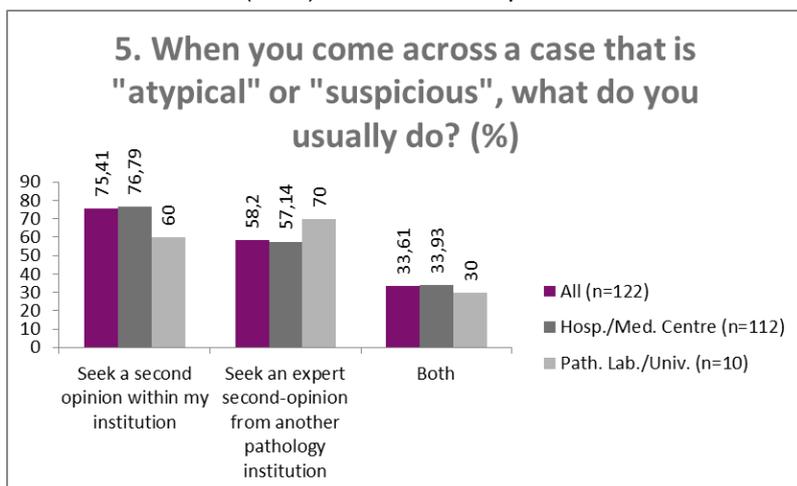
Graph 3) Q3: Level of involvement in multidisciplinary medical team

Q4: Rare cancer experience in daily practice: Less than two-thirds (64%) of respondents stated that they come across a rare cancer case in their daily practice approximately 1-2 times per month or more frequently, whereas more than one-third (36%) replied that they are confronted with a rare cancer case only about 1-2 times per quarter or less frequently.



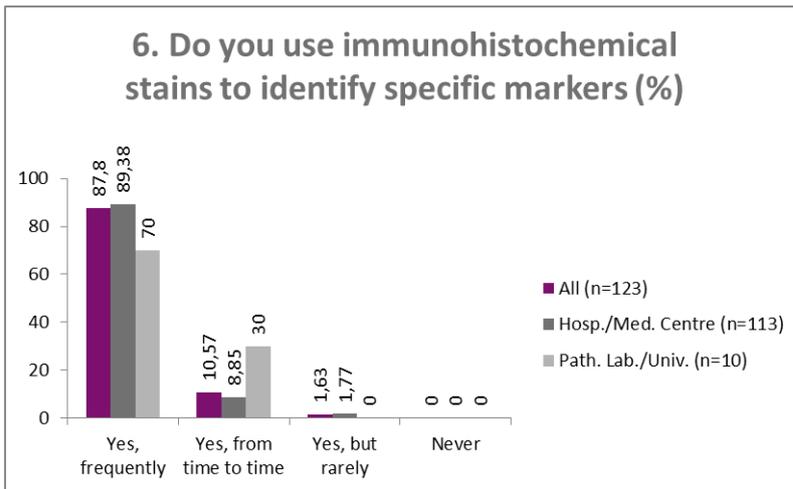
Graph 4) Q4: Rare cancer experience in daily practice

Q5: Handling “atypical”/“suspicious” cases: When coming across a case that is “atypical” or “suspicious”, about three-quarters (75%) of the respondents stated that they seek a second opinion within their institution, more than half (58%) of the pathologists who responded said they seek an expert second-opinion pathology review from another pathology institution, and about one-third (34%) of respondents indicated that they do both. This means that – when confronted with an “atypical” or “suspicious” case – about one-quarter of pathologists (25%) do not try to obtain a second opinion from within their institution and more than one-third (42%) do not seek expert advice from another pathology institution.



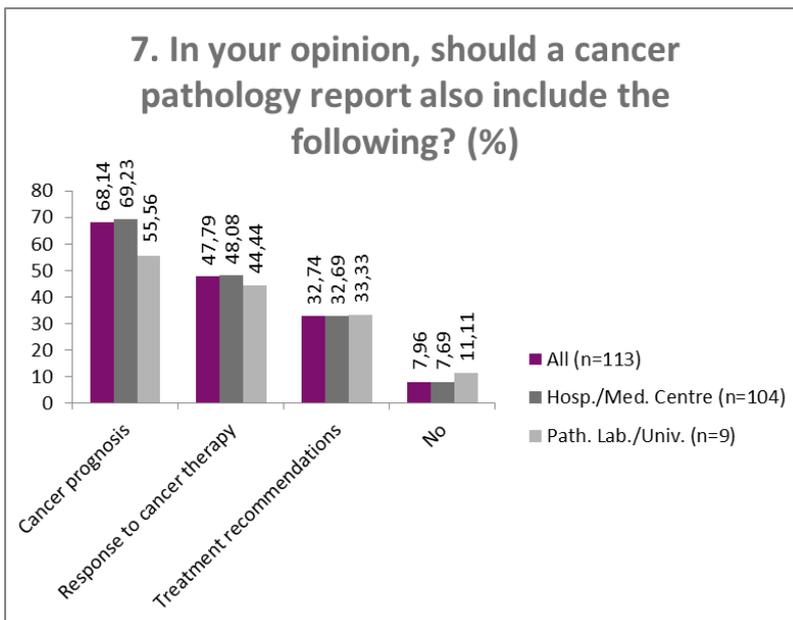
Graph 5) Q5: Handling “atypical”/“suspicious” cases

Q6: Use of immunohistochemical stains: Almost 9 in 10 pathologists (88%) who participated in the survey stated that they frequently use immunohistochemical stains to identify specific markers and about 11% of pathologists use them only from time to time.



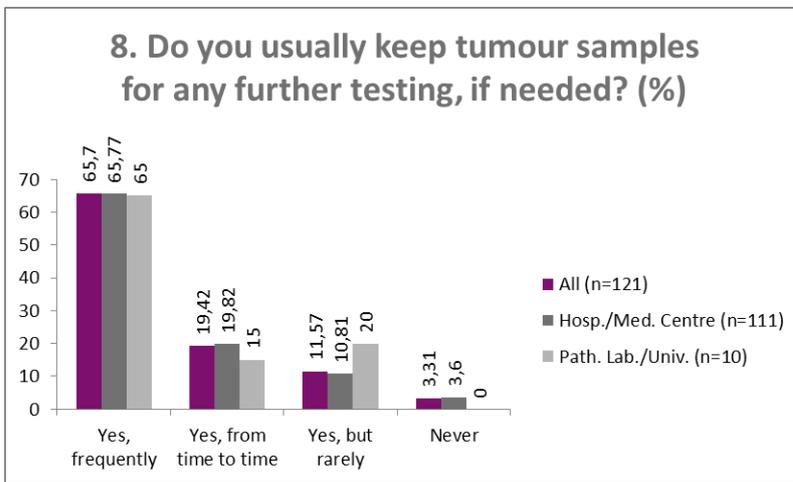
Graph 6) Q6: Use of immunohistochemical stains to identify specific markers

Q7: Cancer pathology report: More than two-thirds (68%) of respondents stated that a cancer pathology report should also include information on the cancer prognosis, less than half (48%) felt that information on the response to cancer therapy should also be included, and one-third (33%) replied that treatment recommendations should also be given in the pathology report. Even though this answer option was not foreseen in the survey, about 1 out of 10 pathologists (8%) explicitly stated in response to this question that information on cancer prognosis, response to cancer therapy and treatment recommendations should not be included in the cancer pathology report. The survey, however, does not provide evidence that this number correlates with the number of pathologists (11%) who stated that they were “not really involved” or “not involved at all” in the multidisciplinary medical team caring for the patient (Question 3).



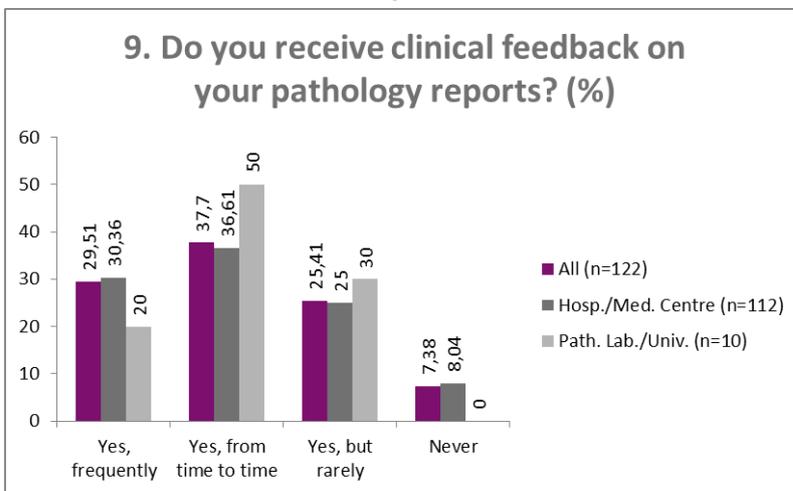
Graph 7) Q7: Cancer pathology report

Q8: Use of tumour samples for further testing: About two-thirds (66%) of respondents stated that they frequently keep tumour samples for any further testing, if needed. About one-fifth (19%) of pathologists who responded to this question said that they keep tumour samples from time to time and about one in seven pathologists (15%) rarely or never keep tumour samples for further testing.



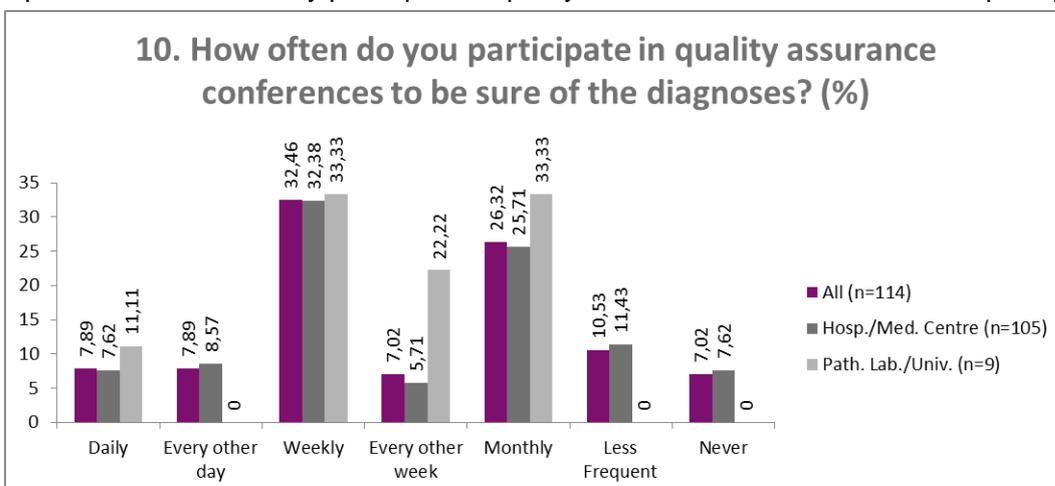
Graph 8) Q8: Use of tumour samples for further testing

Q9: Clinical feedback on pathology reports: Less than one-third (30%) of respondents stated that they frequently receive clinical feedback on their pathology reports and about one-third of pathologists (33%) said in response to this question that they rarely or never obtain any such feedback. More than one-third of respondents (38%) reported receiving this kind of feedback from time to time.



Graph 9) Q9: Clinical feedback on pathology reports

Q10: Participation in quality assurance conferences: Less than one-fifth (16%) of respondents stated that they participate in quality assurance conferences on a daily basis or every other day, about one-third (32%) said they do so on a weekly basis, and another third (33%) answered that they participate in such conferences every other week or on a monthly basis. About one-fifth (18%) of pathologists who responded to this question stated that they participate in quality assurance conferences less frequently or never.

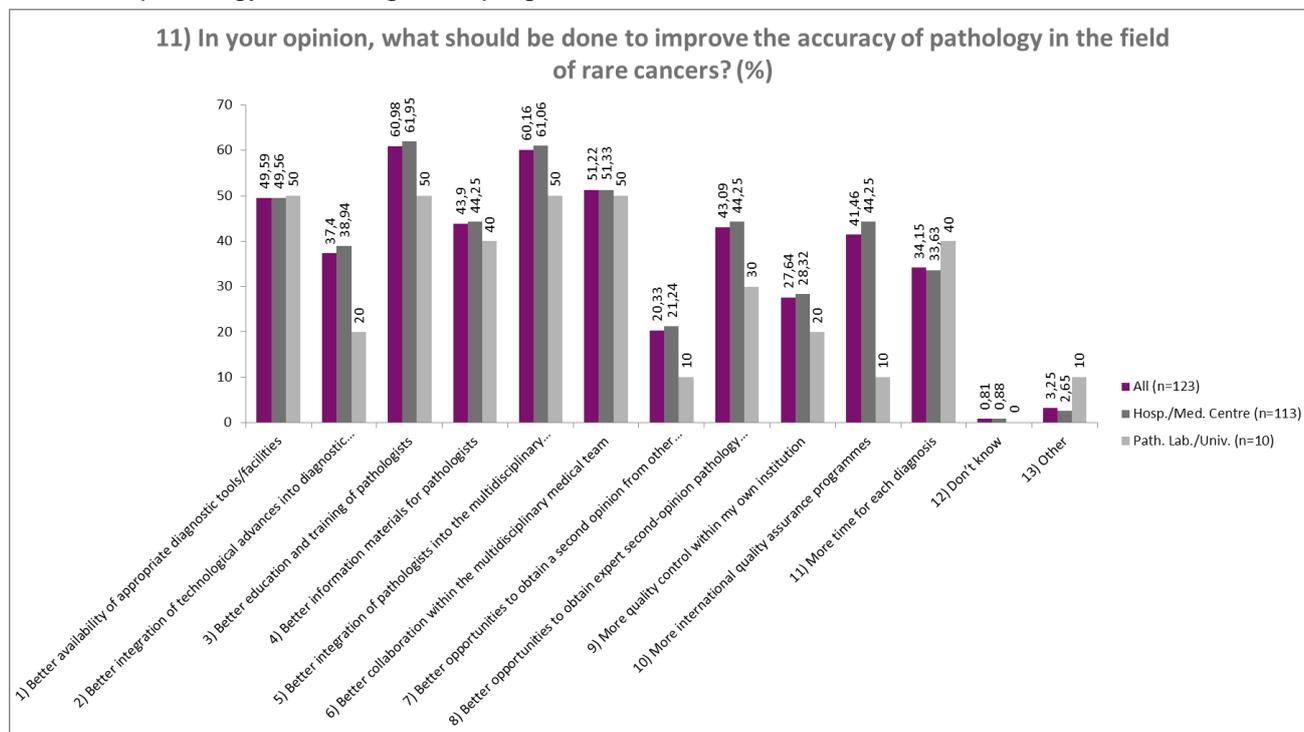


Graph 10) Q10: Participation in quality assurance conferences

Q11: Recommendations for improving the accuracy of rare cancer pathology: In order to improve the accuracy of rare cancer pathology, the most frequent recommendation stated by survey respondents was better education and training of pathologists (61%); followed by better integration of pathologists into the multidisciplinary medical team (60%); better collaboration within the multidisciplinary medical team (51%);

better availability of appropriate diagnostic tools/facilities (50%); better information materials for pathologists (44%); better opportunities to obtain expert second-opinion pathology review from another pathology institution (43%); more international quality assurance programmes (41%); better integration of technological advances into diagnostic practice (37%); more time for each diagnosis (34%); more quality control within their own institution (28%); and better opportunities to obtain a second opinion from other pathologists within their institution (20%).

Other recommendations stated by individual respondents included official contacts to leading pathologists for expert consultation in specific areas and collection of related cases for education purposes; centralisation of pathology service with fewer and larger departments; teamwork in pathology; subspecialisation; national/regional quality assurance programmes; setting up of rare cancer registries and of a European database (consented material) for haematopathological material; and better information about the possibilities of nuclear pathology in the diagnosis, prognosis and treatment.



Graph 11) Q11: Participation in quality assurance conferences

Conclusions

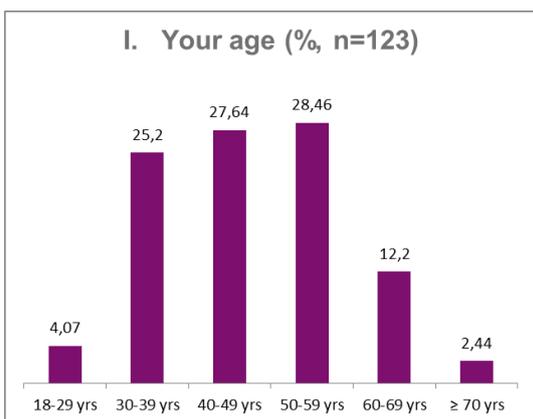
Because of the comparatively small number survey participants, this survey cannot be considered as being representative of the thoughts and opinions of all pathologists in Europe. However, the results of this survey may shed some light on some areas of concern and help to identify potential solutions. The survey suggests that current pathology standards in eastern and southern European countries may be lower than in northern and western European countries. The level of involvement of the pathologist in the multidisciplinary medical team and obtaining a second expert opinion from within or outside a pathologist's institution may be issues to be addressed. There are quite different views on what should be included in a cancer pathology report and the frequency of participation in quality assurance conferences can differ significantly between pathology institutions. The key recommendations for improving the accuracy of rare cancer pathology are better education and training as well as better integration into, and collaboration within, the multidisciplinary medical team. Joint pathology and oncology education and collaboration programmes could be one way to address those issues.

References

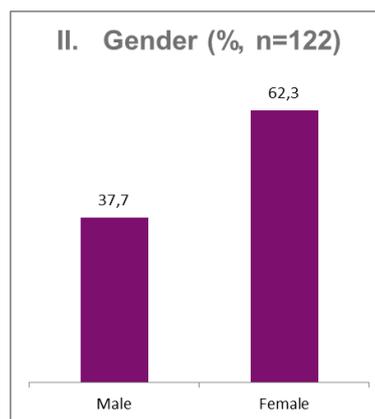
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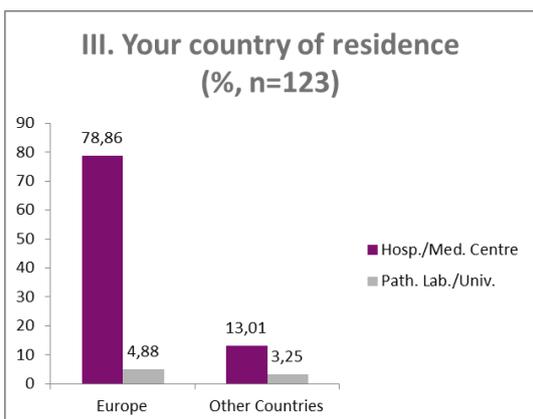
Additional Graphs



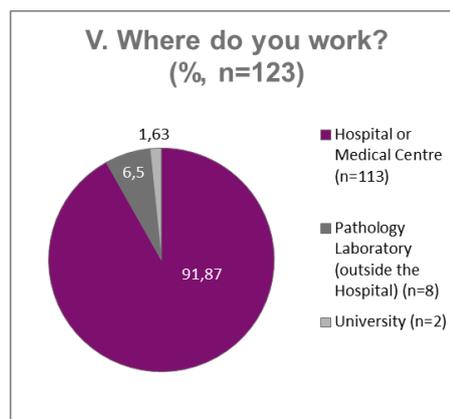
Graph12) Age distribution



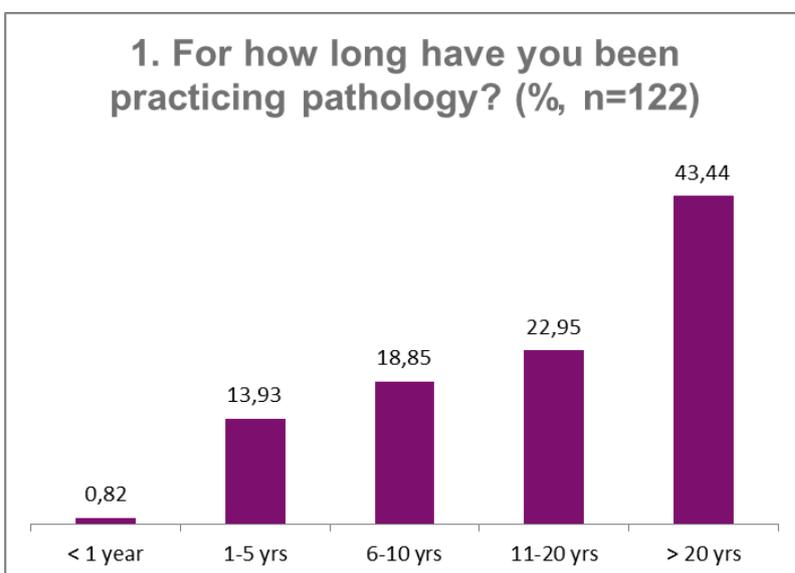
Graph 13) Gender distribution



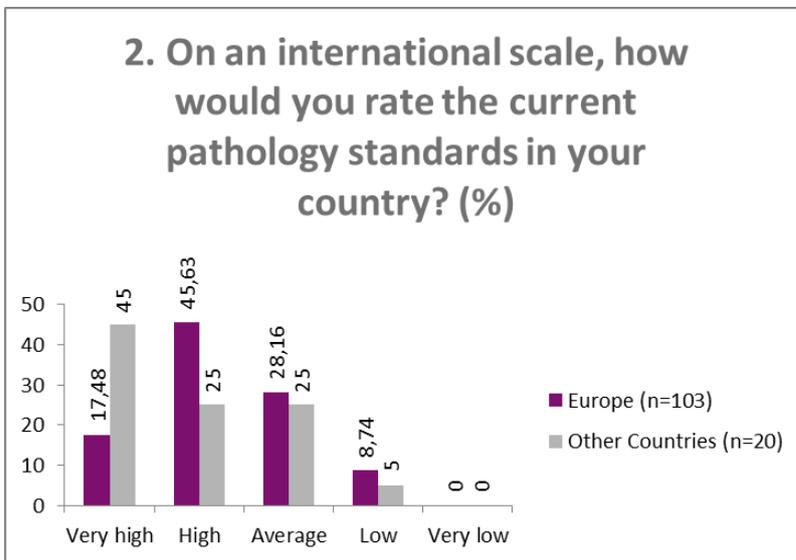
Graph 14) Country of residence



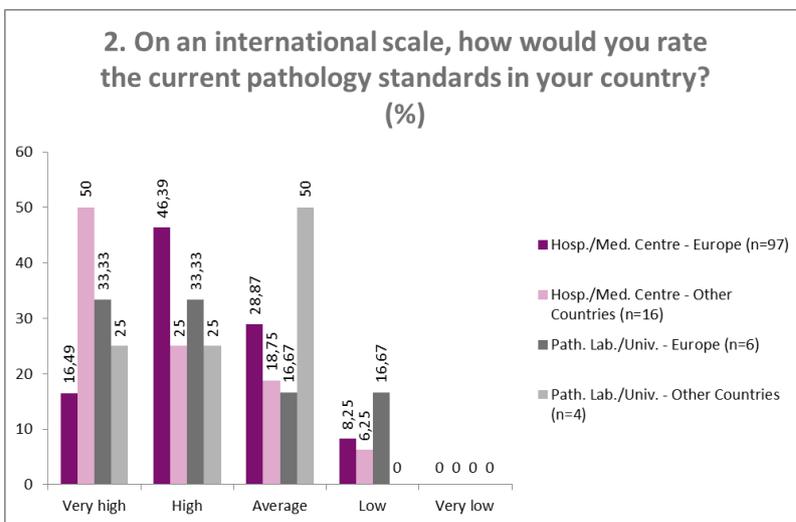
Graph 15) Place of work



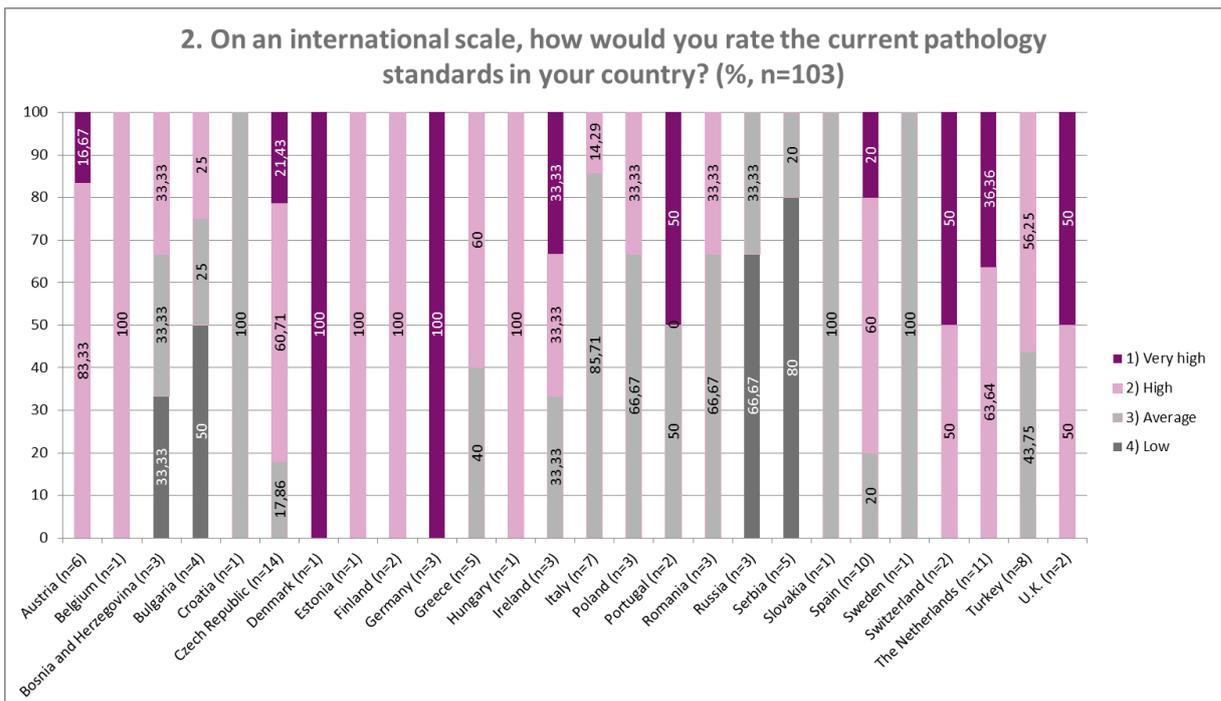
Graph16) Q1: Years in practice



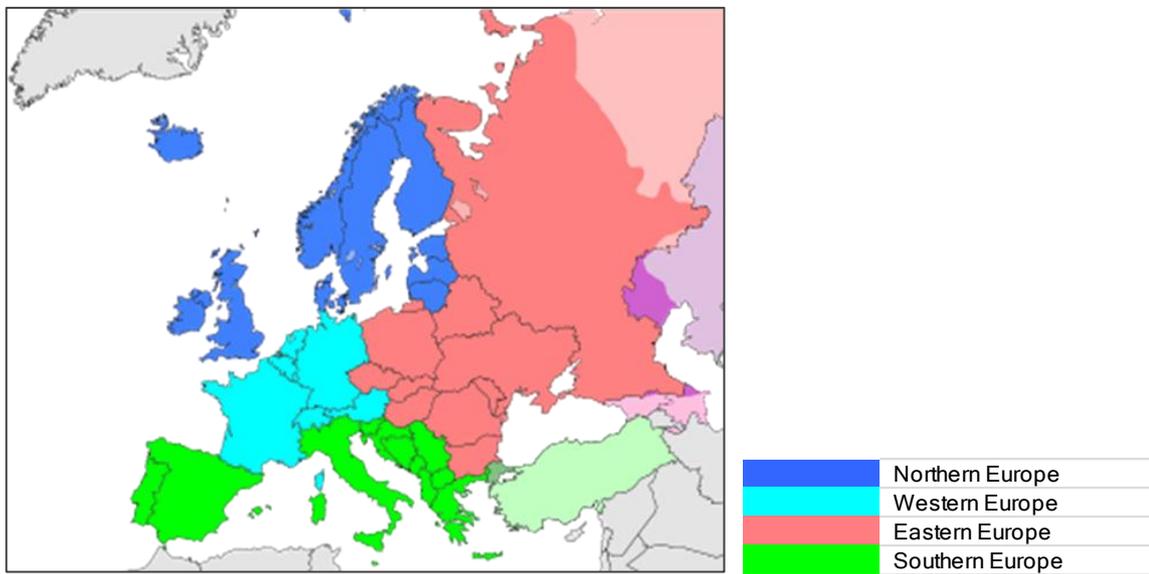
Graph 17) Q2: Pathology standards – Europe vs. other countries



Graph 18) Q2: Pathology standards – Europe vs. other countries by group of respondents



Graph 19) Q2: Pathology standards – European countries



Graph 20) Q2: Regions used for statistical processing purposes by the United Nations Statistics Division.⁶
 Southern Europe incl. Turkey. (Graph included for reference purposes.)



**PATHOLOGY in
RARE CANCERS
QUESTIONNAIRE**



Pathology reports set the foundation for successful cancer care. Rare cancers can pose significant challenges to pathologists and it may therefore not always be easy to diagnose them correctly. This is why the European Society of Pathology (ESP) is involved in the Rare Cancers Europe (RCE) multi-stakeholder initiative, which is led by the European Society for Medical Oncology (ESMO) and currently includes 30 independent national and international partners. RCE aims to address issues of particular relevance in rare cancers, also including late or incorrect diagnosis. Given the potential harm resulting from misdiagnosis, ESP and RCE have jointly developed this short questionnaire to help us identify related issues and challenges as well as potential solutions.

Thank you for your readiness to take this short survey! Please return the completed questionnaire at the ESP Congress booth on the first floor of the Prague Congress Centre or fax it back to +49 (0)30 28879766. To learn more about the Rare Cancers Europe initiative, please visit www.rarecancerseurope.org.

Please be assured that the information you give is **completely confidential**. Also, if you decide to state your name and e-mail address, they will never be linked with any of the information you provide.

I. Your age: 1) 18-29 years 2) 30-39 yrs 3) 40-49 yrs 4) 50-59 yrs 5) 60-69 yrs 6) ≥70 yrs

II. Gender: 1) Male / 2) Female

III. Your country of residence:

IV. Are you a ...

1) **Pathologist?** – Please indicate your sub-specialty (e.g., Haemato, Paediatric, etc.):

2) **Other pathology-related health care professional?** – Please specify:

V. Where do you work?

1) In a hospital or medical centre 2) In a pathology laboratory (outside the hospital)

3) Other (please specify):

VI. [OPTIONAL]: The results of this survey will be made available on the Rare Cancers Europe Web site. If you would like to be notified of the results of the survey, please provide your contact information:

Name and title:

E-mail address:

1. For how long have you been practicing pathology?

1) Less than 1 year 2) 1-5 years 3) 6-10 years 4) 11-20 years 5) More than 20 years

6) Not applicable/Comment:

2. On an international scale, how would you rate the current pathology standards in your country?

1) Very high 2) High 3) Average 4) Low 5) Very low

6) Other/Comment:

3. To what extent are you involved in the multidisciplinary medical team caring for the patient?

1) Fully involved 2) Partially involved 3) Not really involved 4) Not involved at all

5) Other/Comment:

4. In your daily practice, approximately how often do you come across a rare cancer case?

1) Daily 2) 1-2x/week 3) 1-2x/month 4) 1-2x/quarter 5) 1-2x/half year 6) 1-2x/year

7) Other/Comment:

5. When you come across a case that is "atypical" or "suspicious", what do you usually do?

- 1) Seek a second opinion from another pathologist within my institution
- 2) Seek an expert second-opinion pathology review from another pathology institution
- 3) Other/Comment:

6. Do you use immunohistochemical stains to identify specific markers?

- 1) Yes, frequently
- 2) Yes, from time to time
- 3) Yes, but rarely
- 4) Never
- 5) Comment:

7. In your opinion, should a cancer pathology report also include the following? (Please tick all that apply.)

- 1) Cancer prognosis
- 2) Response to cancer therapy
- 3) Treatment recommendations
- 4) Other/Comment:

8. Do you usually keep tumour samples for any further testing, if needed?

- 1) Yes, frequently
- 2) Yes, from time to time
- 3) Yes, but rarely
- 4) Never
- 5) Comment:

9. Do you receive clinical feedback on your pathology reports?

- 1) Yes, frequently
- 2) Yes, from time to time
- 3) Yes, but rarely
- 4) Never
- 5) Comment:

10. How often do you participate in quality assurance conferences to be sure of the diagnoses?

- 1) Daily
- 2) Every other day
- 3) Weekly
- 4) Every other week
- 5) Monthly
- 6) Other/Comment:

11. In your opinion, what should be done to improve the accuracy of pathology in the field of rare cancers? (Please tick all that apply.)

- 1) Better availability of appropriate diagnostic tools/facilities (e.g., automated immunohistochemistry stainers and approved reagents)
- 2) Better integration of technological advances into diagnostic practice
- 3) Better education and training of pathologists (European School of Pathology (EscoP) or else)
- 4) Better information materials for pathologists
- 5) Better integration of pathologists into the multidisciplinary medical team
- 6) Better collaboration within the multidisciplinary medical team
- 7) Better opportunities to obtain a second opinion from other pathologists within my institution
- 8) Better opportunities to obtain expert second-opinion pathology review from another pathology institution
- 9) More quality control within my own institution
- 10) More international quality assurance programmes
- 11) More time for each diagnosis
- 12) Don't know
- 13) Other/Comment:

12. Anything you would like to add?

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Thank you again for your participation!