

The Current State of Communication of Urgent and Significant, Unexpected Diagnoses in Anatomic Pathology

Results of an Association of Directors of Anatomic and Surgical Pathology Survey

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• **Context.**—The concept of critical diagnoses in anatomic pathology is relatively recent and rigorous study of the issue is quite limited. The College of American Pathologists and Association of Directors of Anatomic and Surgical Pathology issued a consensus statement in 2012. There has been no multi-institutional study of communication policies since then.

Objective.—To survey the policies of anatomic pathology laboratories regarding communication of critical values.

Design.—A survey of the Association of Directors of Anatomic and Surgical Pathology membership was performed using a 14-question electronic survey tool.

Results.—Responses were received from 38 institutions. Thirty-five of 38 (92%) had a policy on anatomic pathology critical values. Twenty-five of 38 (66%) respondents had read the College of American Pathologists/Association of Directors of Anatomic and Surgical Pathology consensus statement. Twelve of 38 (32%) institutions divided critical values into 2 categories, of which 9 used the College of American Pathologists/

Association of Directors of Anatomic and Surgical Pathology terminology; 24 used only a single term, of which 11 used critical value. There was substantial variation in the diagnoses that were considered critical. A direct phone call to the responsible provider was uniformly considered an acceptable means of communication; all other methods had mixed or low support. The most common time frame was same day; many laboratories did not specify a timeframe. Most laboratories document date, time, and person to whom the result was communicated in the final report or an addendum report. Eighteen of 38 (47%) laboratories report an auditing mechanism for communication.

Conclusions.—Policies for communication of critical/urgent/significant, unexpected results in anatomic pathology are the norm. However, there remains significant variation between institutions in the details of these policies.

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Communication of critical values to providers has long been an established practice in clinical pathology. More than a decade ago, questions began to be raised in the literature about the existence of critical values in anatomic pathology.^{1,2} It was noted that in most cases anatomic pathology “critical values,” unlike clinical pathology critical values, are information critical rather than time critical,

although in certain instances there may be a time dimension to the importance of communication of these results.² Since 2005, the College of American Pathologists (CAP) Laboratory Accreditation Program has included a checklist item requiring laboratories accredited by CAP to have a policy regarding timely communication of “significant or unexpected surgical pathology findings.” In 2006, the Association of Directors of Anatomic and Surgical Pathology (ADASP) endorsed “the concept of critical diagnoses in anatomic pathology,”³ and in 2012, ADASP and CAP collaborated on the Consensus Statement on Effective Communication of Urgent Diagnoses and Significant, Unexpected Diagnoses in Surgical Pathology.⁴ The consensus statement offered definitions for the terms “urgent diagnosis” and “significant, unexpected diagnosis,” recommending those terms as more meaningful than “critical diagnosis” or “critical value” for anatomic pathology. That publication laid out 6 broadly written recommendations outlining key planks of a policy for these diagnoses, but left a great deal of discretion to individual institutions. It noted the paucity of quality research in this area, yet there has been little subsequent research. In 2018, the ADASP undertook a survey of its

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Table 1. ADASP Survey Questions on Communication of Urgent and Unexpected Values

1. What is your position in the laboratory?
2. Does your laboratory have a policy for communication of urgent and unexpected diagnoses ("critical values") in anatomic pathology?
3. Have you read the CAP/ADASP "Consensus Statement on Effective Communication of Urgent Diagnoses and Significant Unexpected Diagnoses in Surgical Pathology and Cytopathology?"
4. Do you use the CAP/ADASP terminology of "urgent diagnoses" and "significant, unexpected diagnoses" in your policy?

Participants answering they use CAP/ADASP terminology or similar terms for question 4 were given questions 5–10 twice, once for "urgent diagnoses," once for "significant, unexpected diagnoses." Participants answering that they use only a single term were given these questions only once, for "critical values."

5. What diagnoses are considered U/S/C in your laboratory?
6. What are acceptable methods of communicating U/S/C in your laboratory?
7. If you use indirect communication (email, text message, fax), do you have a mechanism for confirming receipt of the message?
8. What is the expected timeframe for communication of U/S/C in your laboratory?
9. How do you document communication of U/S/C?
10. If you document communication of U/S/C, what elements are documented?

The following questions were given to all participants:

11. If your institution has clinical trainees, how does your policy define a "responsible physician" who can receive a critical value?
12. If a specimen is procured by a provider who is not part of the patient's continuing care team (eg, interventional radiology), does your policy specify who is the preferred physician to receive a critical value?
13. Does your laboratory have a procedure for escalation if the initial contact person is unavailable?
14. Does your laboratory have a procedure for auditing and quality assessment of reporting of urgent and unexpected diagnoses?

Abbreviations: ADASP, Association of Directors of Anatomic and Surgical Pathology; CAP, College of American Pathologists; U/S/C, urgent diagnoses/significant, unexpected diagnoses/critical values.

membership to evaluate member's institutional policies in the wake of the 2006 and 2012 consensus statements.

METHODS

A survey was assembled by a subgroup of the ADASP Council and distributed to the entire ADASP membership by email using SurveyMonkey software (SurveyMonkey, San Mateo, California). The survey was open for approximately 1 month, from January to February 2018. Multiple reminder emails were sent. The email distribution list numbered approximately 400. The survey questions are shown in Table 1.

The goal of the survey was to evaluate institutional policy, rather than individual opinions. As the ADASP has multiple members from some institutions, efforts were made to limit the responses to 1 per institution. The announcement requested members coordinate and send only 1 response per institution. Additionally, the list of email addresses of respondents was reviewed for identical institutions, and only 1 response (the one indicating the more senior position in the laboratory) was included in the results.

Among the aims of the study were to evaluate differences in handling of "urgent values" as compared with "significant, unexpected values"; therefore, questions 5 through 10 were given twice to respondents who indicated 2 distinct terms for these entities in question 4, once for each type of value. Those who used only a single term ("critical value" or other) were given those questions only once. The CAP/ADASP definitions of the terms "urgent value" and "significant, unexpected value" were included within the survey to ensure uniformity of use by all respondents. A technical error in the questionnaire in one question (question 5) for "significant, unexpected values" limited analysis for that question.

Many questions offered an answer choice of "other," allowing free text. In most cases in which the free-text answer was substantively similar to an available option, the answer was added to the relevant available option, except where otherwise specified.

RESULTS

Forty-three individuals (43 of 400; 11%) completed the survey. Five responses were excluded as institution duplicates. Of the remaining 38 respondents, 22 (58%) were directors of anatomic pathology, 12 (32%) were directors of an anatomic pathology subspecialty or surgical pathology, and 4 (11%) had other or no administrative role. All respondents had clinical trainees in their institution.

Thirty-five of 38 (92%) respondents indicated that their institution had a policy for communication of urgent and unexpected diagnoses ("critical values") in anatomic pathology; 2 of 38 (5%) did not have such a policy, and 1 of 38 (3%) did not know. Twenty-five of 38 respondents (66%) indicated that they had read the CAP/ADASP Consensus Statement on Effective Communication of Urgent Diagnoses and Significant Unexpected Diagnoses in Surgical Pathology and Cytopathology; 13 of 38 (34%) had not.

Responses to the question "Do you use the CAP/ADASP terminology of 'urgent diagnoses' and 'significant, unexpected diagnoses' in your policy?" are shown in Figure 1. Twenty-four of 38 (68%) institutions used a single term for all such values, either "critical values" (11 of 38; 29%) or another term (13 of 38; 34%). The CAP/ADASP recommended terms were used by 9 of 38 (24%) respondents, and 2 other distinct terms were used by 3 of 38 (8%) respondents. Two of 38 (5%) respondents were unsure. Based on the answers to this question, 26 of 38 (68%) respondents were asked the next set of questions only once, for "critical values" and 12 of 38 (32%) were asked twice for "urgent values" and for "significant, unexpected values."

The next question related to the types of diagnoses that are considered critical, urgent, or significant unexpected values. Due to a coding error in the survey question for "significant, unexpected values," those results could not be interpreted and are not reported. None of the respondents indicated that there were no results that should be considered critical or urgent. Three of 26 (12%) respondents indicated that critical values were at the discretion of the individual pathologist, with no specific critical values defined in the policy and 2 of 12 (17%) said the same about urgent values. Figure 2, A shows the results for malignancies. A substantial majority of institutions classified unexpected diagnosis of malignancy as either an urgent diagnosis or a critical diagnosis. A small subset classified all new diagnoses of malignancy as urgent/critical. The "other subset of malignant diagnoses" free-text responses included malignancy in superior vena cava syndrome and malignancy causing paralysis. Figure 2, B shows the results for various infectious organisms. The free-text responses for specific situations included immunocompromised patients,

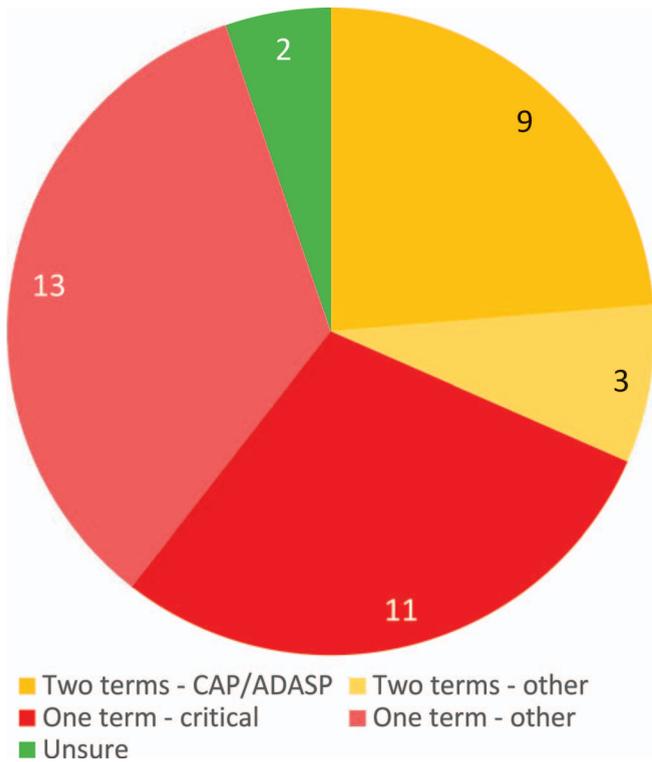


Figure 1. Responses to: Do you use the College of American Pathologists/Association of Directors of Anatomic and Surgical Pathology (CAP/ADASP) terminology of “Urgent Diagnoses” and “Significant, Unexpected Diagnoses” in your policy? Data labels indicate raw numbers; total respondents were 38.

new and/or unexpected diagnosis, specific sites (eg, acid-fast bacilli in heart valves; fungus in sinus, lung, heart valves, cerebrospinal fluid, or central nervous system, cytomegalovirus in kidney, liver, placenta, lung, colon; herpes virus in esophagus or on Pap test during pregnancy; bacteria in cardiac valves or cerebrospinal fluid, or unexpected osteomyelitis), specific organisms (pneumocystis, any fungus but candida), or other specific situations (tissue invasive fungus, toxoplasma in a newborn). Responses for other potential critical or urgent diagnosis are shown in Figure 2, C. Free-text answers included transplant rejection (3 respondents), crescentic glomerulonephritis (2 respondents), and absence of villi in a products of conception specimen (3 respondents).

Acceptable methods of communication are shown in Figure 3. Direct verbal communication by phone was endorsed by all respondents. Email and secure text messaging to the responsible care provider had mixed responses. In general, other modalities received support from only a minority of respondents. Other responses included communication through the electronic medical record and in person. When asked about a mechanism to confirm receipt for indirect methods of communication, such as email, text message, or fax, 10 said yes and 2 said “we do not use” for urgent values; 9 said yes, 1 said no, and 2 said “we do not use” for significant, unexpected values; and 4 said yes, 11 said no, and 11 said “we do not use” for critical values. The expected timeframe for communication is provided in Figure 4. Free-text responses among those who picked “other” included the following: for urgent values, within 24 hours (2 responses) and as soon as possible (1

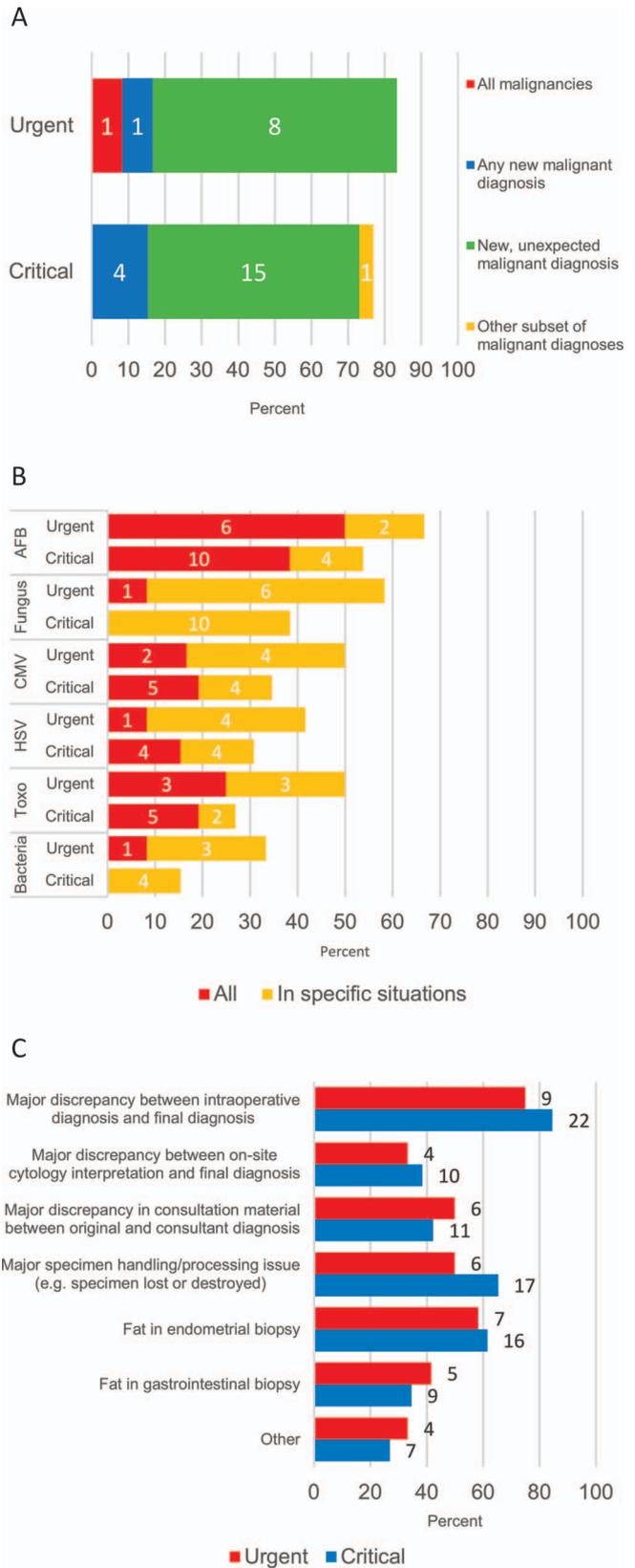


Figure 2. Responses to: What diagnoses are considered critical/urgent/significant, unexpected diagnoses in your laboratory? A, Malignancy; B, organisms; C, other; The data are shown as percent of respondents, with raw number of respondents shown as data labels; total responses were 26 for critical and 12 for urgent. Abbreviations: AFB, acid-fast bacilli; CMV, cytomegalovirus; HSV, herpes simplex virus; Toxo, toxoplasma.

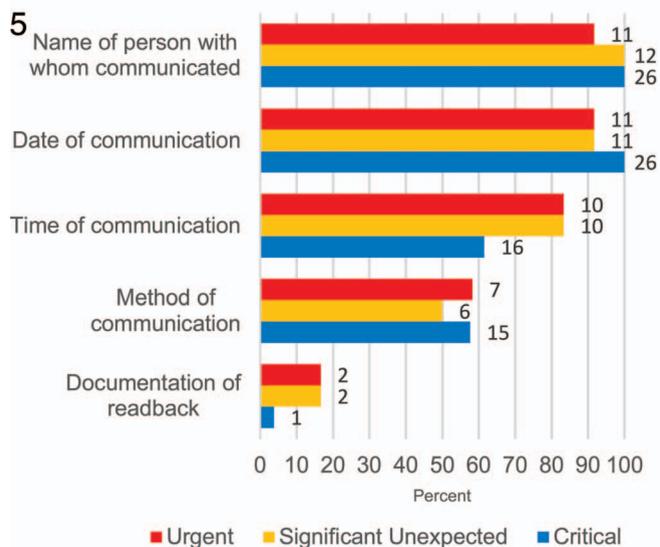
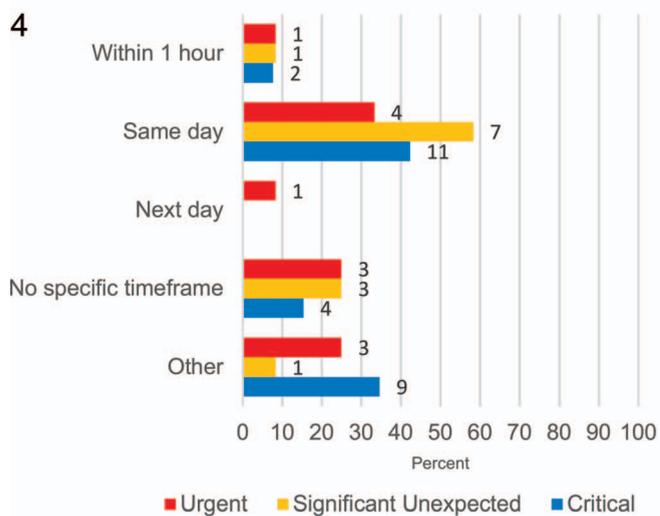
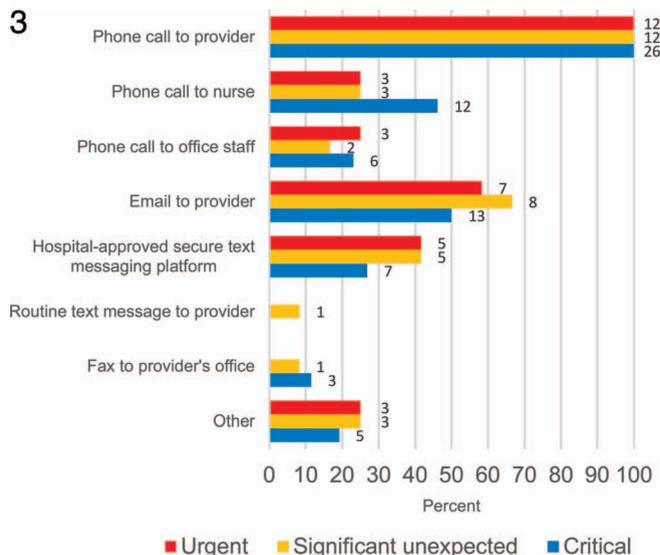


Figure 3. Responses to: What are acceptable methods of communicating critical/urgent/significant, unexpected diagnoses in your laboratory? The data are shown as percent of respondents, with raw number of respondents shown as data labels; total responses were 12 for urgent and significant, unexpected, and 26 for critical.

response); for significant unexpected values within a reasonable timeframe (1 response); and for critical values immediately (1 response), prior to sign out (1 response), within 24 hours (3 responses), and as soon as possible (4 responses).

For all three categories, 92% of respondents document communication within the final report or an addendum (11 of 12 urgent; 11 of 12 significant, unexpected; and 24 of 26 critical), and 8% document separately from the report (1 of 12 urgent, 1 of 12 significant, and 2 of 26 critical); none reported that documentation was not required. The elements documented are shown in Figure 5.

The next set of questions concerned who could receive a critical/urgent/significant, unexpected diagnosis—15 of 38 (39%) said residents or fellows could receive results, 7 of 38 (18%) said only attending physicians could receive results, and 16 of 38 (42%) said their policy did not specify whether trainees could receive results. The next question asked was “If a specimen is procured by a provider who is not part of the patient’s continuing care team (eg, interventional radiology), does your policy specify who is the preferred physician to receive a critical value?” A member of the primary team was required by 10 of 38 (26%) and preferred by 6 of 38 (16%), a member of the procuring team was required by 3 of 38 (8%) and preferred by 2 of 38 (5%), either team was considered equally acceptable by 14 of 38 (37%).

Twenty-three of 38 (61%) respondents indicated that their laboratory had a policy for escalation if the initial contact could not be reached and 15 of 38 (39%) did not. Eighteen of 38 (47%) respondents indicated their laboratory had a process for auditing and quality assessment for urgent/unexpected value callbacks; 20 of 38 (53%) did not.

The degree of consensus among laboratories is summarized in Table 2.

DISCUSSION

The idea of critical values in the laboratory has existed since at least 1972, when the term was defined by Lundberg as “pathophysiological derangements at such variance with normal as to be life-threatening if therapy is not instituted immediately and for which immediate intervention is necessary to avoid harm to the patient.”⁵ Ensuring receipt of the result by the right clinician is essential to avoiding harm in these cases. Therefore, policies on reporting of clinical pathology critical values require several elements—a clear definition of the value considered critical, a clear timeframe within which the report must be communicated, a clear characterization of the individual(s) to whom the result must be communicated, a fail-safe mechanism for ensuring receipt of the result, and documentation of these elements.

Figure 4. Responses to: What is the expected timeframe for communication of critical/urgent/significant, unexpected diagnoses in your laboratory? The data are shown as percent of respondents, with raw number of respondents shown as data labels; total responses were 12 for urgent and significant, unexpected, and 26 for critical.

Figure 5. Responses to: If you document communication of critical/urgent/significant, unexpected diagnoses, what elements are documented? The data are shown as percent of respondents, with raw number of respondents shown as data labels; total responses were 12 for urgent and significant, unexpected, and 26 for critical.

Issue	Relative Consensus Against (<25%)	No Consensus For or Against (25%–75%)	Relative Consensus For (>75%)
General concepts		<ul style="list-style-type: none"> • Terminology used 	<ul style="list-style-type: none"> • Has a policy
Critical/urgent diagnoses	<ul style="list-style-type: none"> • No results are critical/urgent • Entirely at discretion of pathologist • Every new malignancy • Every malignancy • Every infectious organism (other than acid-fast bacilli) 	<ul style="list-style-type: none"> • Every acid-fast bacillus • Other infectious organisms in certain circumstances • Fat in gastrointestinal or endometrial biopsy • Major discrepancy on outside consultation • Major cytology adequacy- final diagnosis discrepancy • Major processing/handling issue 	<ul style="list-style-type: none"> • New, unexpected malignancy • Major frozen-final diagnosis discrepancy
Communication method	<ul style="list-style-type: none"> • Phone call to office staff • Routine text message • Fax 	<ul style="list-style-type: none"> • Email to provider • Secure text message to provider • Phone call to nurse 	<ul style="list-style-type: none"> • Phone call to provider
Communication timeframe	<ul style="list-style-type: none"> • Within 1 hour 	<ul style="list-style-type: none"> • Same day • No specific timeframe 	
Documentation location	<ul style="list-style-type: none"> • Separate document 		<ul style="list-style-type: none"> • Final/addendum report
Documented elements	<ul style="list-style-type: none"> • Read back of diagnosis 	<ul style="list-style-type: none"> • Time of communication • Method of communication 	<ul style="list-style-type: none"> • Name of person receiving • Date of communication
Who can receive results		<ul style="list-style-type: none"> • Indirect procuring providers 	<ul style="list-style-type: none"> • Residents
Escalation procedure		<ul style="list-style-type: none"> • Has an escalation procedure 	
Auditing/quality procedure		<ul style="list-style-type: none"> • Has an auditing/quality procedure 	

^a Empty fields indicate no choices offered for that issue achieved the indicated degree of consensus.

There was no literature considering anatomic pathology critical values until Periera et al⁶ published a study on “critical values in surgical pathology” in 2004.¹ They reviewed more than 2500 surgical pathology reports, and identified 0.49% as potentially “critical values,” of which only one-third had documentation of communication to the clinician. They also surveyed a small number of pathologists and clinicians and found substantial variation in interpretation of what surgical pathology results should be considered critical. In a similarly structured study of cytology “critical values,” Periera et al⁶ found 2.6% of values were potentially critical, of which 58% had documentation of a phone call. While there was disagreement in their survey regarding what constituted a cytology critical value, there was relative agreement on a new diagnosis of malignancy, organisms in an immunocompromised patient, and discordant preliminary and final interpretation on a fine-needle aspiration.

Around this time, a checklist item was added to the CAP Laboratory Accreditation Program regarding communication of significant or unexpected values in anatomic pathology, and ADASP published a position statement “endorses the concept of critical diagnoses in anatomic pathology, recognizing that critical diagnosis guidelines would be helpful to practicing pathologists and ultimately to our clinical colleagues and patients.”³ This statement listed examples of possible “critical diagnoses” but maintained that details of such policies, including types of diagnoses and communication methods, should be decided at the institutional level. The diagnoses listed fell into the following three broad categories: cases with immediate clinical consequence, unexpected or discrepant findings, and infections.

Subsequent single-institution studies of pediatric surgical pathology practice⁷ and a large academic surgical pathology practice,⁸ as well as multi-institutional surveys^{9–11} showed

limited consensus on what diagnoses are critical, supporting the concept of local variations in critical values policy. In particular, Nakhleh et al¹¹ found in a CAP survey of 1130 laboratories that only 75% had a written policy, and that no single diagnosis was regarded as critical by even half of laboratories. More recently, Xing et al¹² found increased use of a tracking code for cytology critical diagnoses in their laboratory information system among private hospitals within their medical system compared with the academic medical center, suggesting that clinicians in a private practice setting may desire more telephone communication than those in an academic setting, further supporting the need for institutional discretion. Along the way, a variety of editorial and review articles have also been published, which discussed the various issues involved with anatomic pathology critical values.^{13–18}

The 2012 CAP/ADASP Consensus Statement on Effective Communication of Urgent Diagnoses and Significant, Unexpected Diagnoses in Surgical Pathology and Cytopathology further solidified the position that laboratories should have a policy regarding such anatomic pathology results, but left nearly all of the details to the discretion of each institution.⁴ This statement eschewed the term “critical values” for anatomic pathology, using instead the terms “urgent diagnosis,” defined as “a medical condition that, in most cases, should be addressed as soon as possible” and “significant, unexpected diagnosis,” defined as “a medical condition that is clinically unusual or unforeseen and should be addressed at some point in the patient’s course.” The paper further states that each institution should have a policy regarding these diagnoses; each pathology department should, in conjunction with clinicians, determine what diagnoses fall into each category; clinical judgment of the pathologist is necessary in individual cases; communication of urgent diagnoses should occur as soon as possible but that institutions should create their own specific timeframes

for reporting; verbal direct communication is preferred but other methods may be appropriate; and the communication should be documented.

Since the publication of this consensus statement, there has been no multi-institutional study to determine the degree of uptake of the recommendations, and whether there has been any convergence toward consensus on the issues left to local discretion. The authors took advantage of the ADASP electronic mailing list to access a range of pathologists holding leadership roles in anatomic pathology, predominantly in academic medical centers, to gain more information about actual practice regarding anatomic pathology critical/urgent/significant, unexpected diagnoses. Importantly, unlike most prior surveys, this survey asked questions related to the actual departmental/institutional policy, not the respondent's personal beliefs.

This study found that almost all institutions have policies related to communication of critical diagnoses in anatomic pathology. This finding is not surprising, as it is a requirement for both CAP and The Joint Commission accreditation. Still, this represents a remarkable shift, given that the concept of anatomic pathology critical values emerged only 15 years ago. Two-thirds of respondents indicated that they have read the CAP/ADASP position paper.

Despite the CAP/ADASP recommendation for two-tiered terminology, most laboratories surveyed used a single term; only 9 of 38 laboratories (24%) used the CAP/ADASP terminology (Figure 1). Interestingly, even among those who used 2 distinct terms, the actual handling of these results differed very little. Essentially the same methods for communication (Figure 3) and expected time frame for communication (Figure 4) were reported by these laboratories for both categories of diagnoses. The fundamental difference between urgent and significant, unexpected diagnoses is the clinical urgency, and therefore the timeframe in which results should be reported. While the division of these categories makes a great deal of sense in theory, if in practice there is no difference in reporting the results, then maintaining 2 separate categories may add unnecessary complexity to the policy. The relatively small proportion of laboratories that have adapted the two-tiered terminology may reflect this.

Beyond the number of categories of "critical diagnoses," there has been significant debate about the terminology attached to these diagnoses, and there is some evidence the name matters. Initial studies used the term critical value as a parallel to clinical pathology; however, there are substantial differences between the two. In anatomic pathology, usually at least a day passes between specimen collection and review by the pathologist, rendering very rapid communication—typically expected to be on the order of minutes in clinical pathology—unnecessary. Moreover, most diagnoses considered "critical" in anatomic pathology are not immediately life-threatening, compared with those in clinical pathology. Finally, most clinical laboratory values are numeric or binary, whereas anatomic pathology reports are free text, requiring more nuanced consideration of the threshold for communicating results. The ADASP statement of 2006 advanced the term "critical diagnosis" to separate anatomic pathology results from clinical critical values,³ and this term was largely adopted in subsequent papers. The CAP checklist item uses the term "significant and unexpected" for anatomic pathology results, which was adopted and further refined in the CAP/ADASP consensus statement

into "urgent" and "significant, unexpected" diagnoses.⁴ However, Renshaw et al¹⁹ found marked differences in opinion between pathologists and clinicians as to what constituted a "critical value/diagnosis," "critical result," or "urgent result;" however, when they used the term "treatable imminently life threatening" the difference disappeared. Cretara and Otis²⁰ likewise found substantial differences between clinicians and pathologists when using their preferred term, "urgent-alert." The results of these studies suggest that the terminology used has impact and should be given careful consideration, and that communication between clinicians and pathologists is important in defining critical diagnosis policies. Our study reveals that many laboratories (16 respondents) use terminology other than critical, urgent, and/or significant, unexpected. We had not anticipated this result, and therefore did not provide a free text field to further explore alternative terminology.

While there was uniform agreement among respondents that critical/urgent diagnoses exist in anatomic pathology, significant variation remains regarding the specific diagnostic entities considered critical/urgent (Figure 2). Broadly, these diagnoses can be grouped into malignancies, organisms, other diagnoses, and technical/diagnostic issues. Overall, most laboratories considered at least some subset of malignancies critical/urgent, with little difference between the two categories. A substantial majority of laboratories considered a new and unexpected malignant diagnosis to be critical/urgent, but only a small minority considered all new diagnoses or all diagnoses of malignancy to be critical/urgent. The results for organisms were more mixed, but only a minority of respondents' policies classified every organism choice as critical/urgent. Acid-fast bacilli were most likely to be classified as urgent/critical and bacteria the least likely, and there were again few substantial differences between critical and urgent categorizations. Diagnoses other than malignancy or organisms likewise showed little consensus. In terms of technical/diagnostic issues, only discrepancy between frozen section and final diagnosis was considered critical/urgent by a substantial majority of respondents; others were more mixed. A few respondents indicated that no specific critical (3 of 26; 12%) or urgent (2 of 12; 17%) diagnoses were defined, but instead were entirely at the discretion of the individual pathologist. Unfortunately, this survey could not assess what diagnoses were defined as significant, unexpected diagnoses because of a technical error in the questionnaire. Our findings mirror most prior studies in finding limited consensus as to what constitutes a critical diagnosis in anatomic pathology.^{1,6,7,9,10} Nakleh et al,¹¹ in the largest survey of laboratories on this topic, did not identify a single diagnosis that the majority of laboratories included in their written policy as a critical diagnosis.¹¹ In that study, malignancy (48.3%), life-threatening infections (44.6%), and "findings not expected by clinical history" (46.3%) were the categories most commonly considered critical. That study further found that 29.6% of laboratories had no specific conditions listed, leaving the decision to the individual pathologist's judgement.

The timeframe expected for communication of anatomic pathology critical/urgent/significant, unexpected diagnoses was most commonly same day, followed closely by "no specific timeline" (Figure 4). Only a small number of laboratories expected communication within an hour of diagnosis, even for critical/urgent diagnoses. There were no meaningful differences in communication timeframe be-

tween the 3 categories of results. Interestingly, this was true even when comparing urgent diagnoses to significant, unexpected diagnoses, with a small shift toward earlier reporting expectations for significant, unexpected diagnoses. This pattern suggests that the expectations for communication timeframe may be based more on the practicalities of establishing contact with the clinician, rather than the urgency of the diagnosis, and raises questions about the functional relevance of splitting these categories.

Regarding communication methods, there was unanimous agreement that a phone call to the provider was an acceptable means of communication of results (Figure 3). An email to the provider was acceptable to half or more of laboratories. Use of a hospital-approved secure messaging platform was the third most commonly selected option; it is unclear how many of the hospitals surveyed have access to such technology, so this survey data should not necessarily be used to assess the acceptability of that option. Phone calls to a nurse or office staff were much less likely to be considered an acceptable communication method, and the other methods provided scored very low. Of those who used indirect methods, such as email, text message, or fax, nearly all using dual terminology (such as urgent and significant, unexpected diagnoses) reported having a mechanism to confirm receipt; however, more than half of those who use a single term indicated that they do not have a required mechanism to confirm receipt. It is unclear why there is a discrepancy in the answers to this particular question between the 2 groups. Faxes, texts, emails, and electronic health record inbox messaging risk a communication failure with potential for harm to the patient if receipt confirmation does not close the loop. The advent of novel methods of communication may perhaps relieve some of the burden of communication, particularly for nonurgent results. Secure, text message–based communications systems have been adapted by some hospitals and may offer a better balance of functionality and convenience than many traditional methods; our study shows some use of this mechanism among survey takers. Many hospital electronic medical records have in-basket functionality and built in email-type communications that may offer an easier way to reach ordering clinicians, and several free-text responses indicated that institutions are using this method.

Policies varied as to which providers could receive the communication. All of the institutions surveyed had clinical trainees; most said trainees could receive results or that the policy did not specify (which presumably means that communication with trainees is acceptable); only 7 of 38 (18%) institutions required communication with an attending physician. There was a wide range of responses as to who should receive the critical diagnosis when a specimen is procured by a provider who is not part of the clinical care team, such as in interventional radiology. The most common single answer was that a member of either team is acceptable (14 for 38; 37%); however, a member of the primary team was either required or preferred by 16 of 38 (42%), and a member of the procuring team was required or preferred by only 5 of 38 (13%).

Most laboratories did not have a policy for escalation if the initial contact could not be reached, either indicating that this is rarely a problem within the timeframe of reporting anatomic pathology critical values or suggesting that this represents a potential area for improvement in policies.

Communication was documented within the pathology report or as an addendum in the vast majority of

laboratories surveyed, with the remainder keeping separate documentation. The name of the person to whom the result was communicated and the date of communication were essentially universally required elements of documentation, with time of communication close behind (Figure 5). Method of communication was less commonly a required element of documentation and read back documentation was uncommon.

Just under half of laboratories surveyed indicated that they had an auditing process for reporting of critical results. Auditing represents an opportunity to demonstrate and/or further improve the effectiveness of laboratory policy. When determining an approach to quality monitoring/auditing of critical values, pathologist self-identification of critical values cases is unlikely to be the best method, as it relies on the same behavior—pathologist identification of a diagnosis as critical/urgent—that it measures. Renshaw and Gould²¹ demonstrated that although 24 of 30 cases identified as critical by a key word search had documented communication, only 2 had been flagged by the pathologist as critical. However, their methodology required a full review of 1.8% of results. In an intriguing approach that blurs the line between retrospective auditing and real-time patient care, Owens et al²² reported the use of natural language parsing technology to automate report review, identifying critical diagnoses that were not communicated on a daily basis to allow timely communication of those results to clinicians.

While this work presents important data on the current state of laboratory policies regarding critical/urgent/significant, unexpected diagnoses, there are several limitations to the study, and the findings should not be overgeneralized or considered evidence of the standard of care. First, the ADASP membership leans heavily toward leaders of academic departments, and the finding that residents and/or fellows were present at every institution surveyed supports the academic basis of these data. The practices of nonacademic institutions might be quite different, and it is difficult to predict in what direction results might differ. Second, the survey included only 38 institutions, which is a minority of academic pathology departments and therefore may not be entirely representative. Additionally, the data are self-reported, and represent a single individual's understanding of the departmental policy, which could potentially be subject to inaccurate recall or social desirability bias. Taken together, these limitations significantly limit our ability to make evidence-based recommendations.

Nevertheless, given the paucity of published data on this topic, especially since the promulgation of the CAP/ADASP consensus statement, the study provides an important update on the current state of practice for communication of critical/urgent/significant, unexpected diagnoses in anatomic pathology. Moreover, the data support that programs have largely adapted practices broadly in line with the CAP/ADASP recommendations, and perhaps offer some guidance to those looking to implement or revise their institutional policy. In particular, there was broad implementation of the recommendations that institutions have a policy, and that departments should define specific diagnoses as urgent. Indeed, only a small minority held that there were no such diagnoses or that they should be left entirely to individual discretion. However, only rare entities had significant consensus as urgent or critical diagnoses (Table 2), so with the exception, perhaps, of an unexpected diagnosis of malignancy or major frozen-final discrepancy, this list requires local determination. While direct phone

communication was broadly supported, other methods of communication and timing of communication are more varied and may require more institutional and pathologist discretion. The results also support the CAP/ADASP recommendations that written documentation of communication be kept and include at a minimum the provider's name, date, and time of communication. Although the survey found incomplete adoption of the recommended terminology, with most institutions using only 1 term, such as critical diagnosis, and with little difference in procedures for those who used 2 terms, the rationale for distinguishing based on urgency remains strong, and the authors do not advocate abandoning the CAP/ADASP recommended terminology at present.

CONCLUSIONS

Our survey of ADASP member institutions indicates that the recent emphasis on anatomic pathology critical values has resulted in the creation of formal policies at most institutions. However, the majority of policy details remain quite variable between institutions, including the terminology used, classification into 1 or more categories, the diagnoses that should be included, the communication timeframe, communication method, documentation, and auditing. Although the details of policies are appropriately individualized by each institutional anatomic pathology service in conjunction with clinical colleagues, the findings of this study provide some benchmarks for the current state of institutional policy, at least in academic institutions, that may be helpful to those looking to craft or revise a formal policy regarding urgent and significant, unexpected diagnosis in anatomic pathology.

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