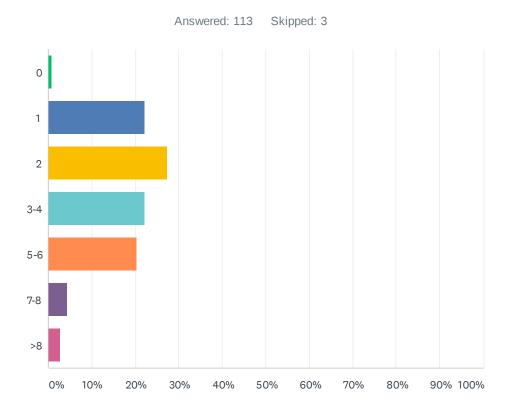
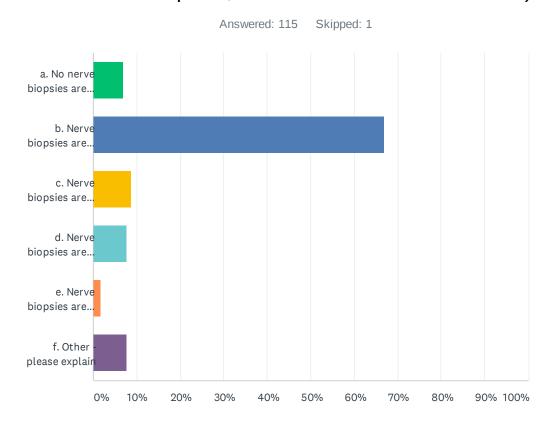
Q1 Please enter the state and zip code of your institution Answered: 105 Skipped: 11

Q2 How many neuropathologists are in your group?



ANSWER CHOICES	RESPONSES	
0	0.88%	1
1	22.12%	25
2	27.43%	31
3-4	22.12%	25
5-6	20.35%	23
7-8	4.42%	5
>8	2.65%	3
TOTAL	1	113

Q3 Who evaluates the peripheral nerve biopsies at your institution (e.g. sural nerve biopsies, or other subcutaneous nerves)?

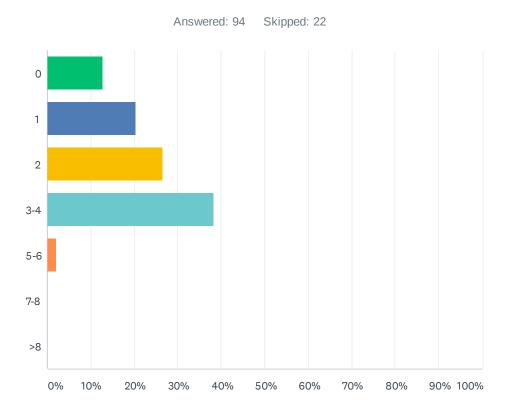


ANSWER CHOICES	RESPONSES	
a. No nerve biopsies are performed at my institution.	6.96%	8
b. Nerve biopsies are interpreted at my institution by Neuropathology.	66.96%	77
c. Nerve biopsies are interpreted at my institution by Neurology.	8.70%	10
d. Nerve biopsies are sent to an outside academic lab/institution.	7.83%	9
e. Nerve biopsies are sent to a commercial lab	1.74%	2
f. Other - please explain	7.83%	9
TOTAL		115

#	F. OTHER - PLEASE EXPLAIN	DATE
1	I am a NP at a commercial lab who examines nerve biopsies	5/14/2021 8:50 AM
2	My institution is research-only, no clinical diagnostics.	5/10/2021 7:13 PM
3	some of the nerve biopsies are interpreted at my institution	5/4/2021 9:35 AM
4	See Item 33.	4/30/2021 10:21 PM
5	Both Neuropathology and Neurology (complementary)	4/29/2021 5:39 PM
6	No idea who does them, but we have a prestigious neurology group so someone must be doing them	4/29/2021 4:01 PM
7	We share peripheral nerve between Neuropath & Neurology	4/29/2021 3:11 PM

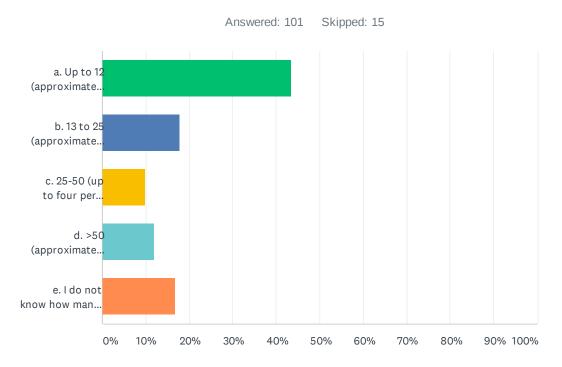
F	Practice Survey 2021	SurveyMonkey
8	The lab is run by neuropathology but there is one neuropathologist and one neurologist who perform the diagnoses of the slides	4/29/2021 1:14 PM
9	nerve biopsies are extraordinarily rare here	4/29/2021 1:05 PM

Q4 If performed in neuropathology, how many members in your neuropathology group evaluate and sign-out peripheral nerve biopsies (e.g. sural nerve biopsies, or other subcutaneous nerves)?



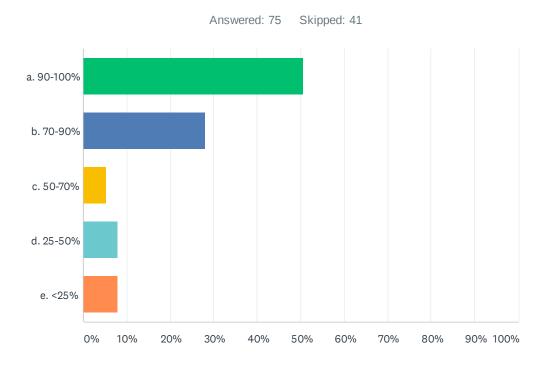
ANSWER CHOICES	RESPONSES	
0	12.77%	12
1	20.21%	19
2	26.60%	25
3-4	38.30%	36
5-6	2.13%	2
7-8	0.00%	0
>8	0.00%	0
TOTAL		94

Q5 Approximately how many peripheral nerve biopsies do you process at your institution per year?



ANSWER CHOICES	RESPONSES	
a. Up to 12 (approximately one per month)	43.56%	44
b. 13 to 25 (approximately two per month)	17.82%	18
c. 25-50 (up to four per month)	9.90%	10
d. >50 (approximately more than one per week)	11.88%	12
e. I do not know how many are performed	16.83%	17
TOTAL		101

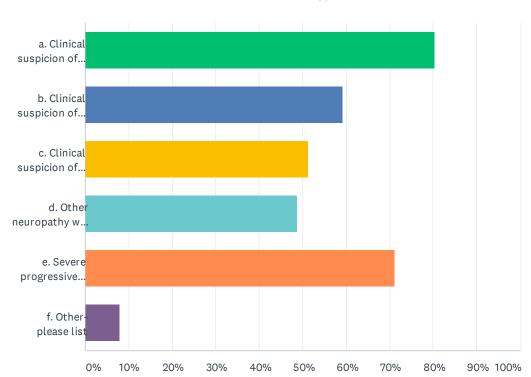
Q6 In how many of the nerve biopsies processed in neuropathology do you have access to the clinical information (indication for the biopsy)?



ANSWER CHOICES	RESPONSES	
a. 90-100%	50.67%	38
b. 70-90%	28.00%	21
c. 50-70%	5.33%	4
d. 25-50%	8.00%	6
e. <25%	8.00%	6
TOTAL		75

Q7 What are common indications for a nerve biopsy in your institution/group?

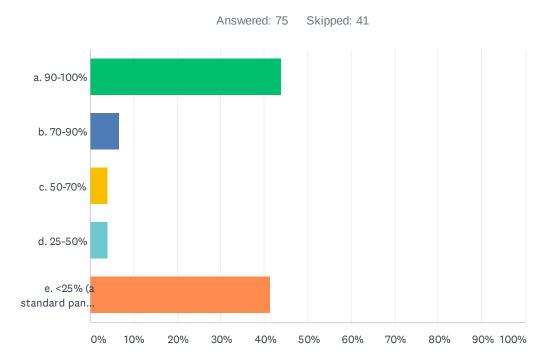




ANSWER CHOICES	RESPONSES	
a. Clinical suspicion of vasculitis.	80.26%	61
b. Clinical suspicion of chronic demyelinating neuropathy, such as CIDP.	59.21%	45
c. Clinical suspicion of amyloidosis.	51.32%	39
d. Other neuropathy with diagnostic histopathologic features.	48.68%	37
e. Severe progressive neuropathy of unknown etiology.	71.05%	54
f. Other- please list	7.89%	6
Total Respondents: 76		

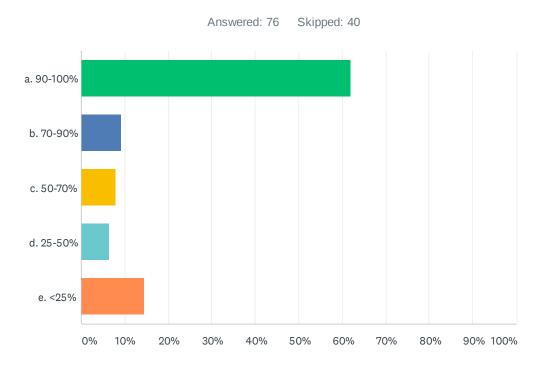
#	F. OTHER- PLEASE LIST	DATE
1	Try to find neurognic cause of weakness	4/30/2021 3:40 PM
2	Hereditary	4/29/2021 2:15 PM
3	Possible hereditary neuropathies with inconclusive VUS on genetic panel	4/29/2021 1:48 PM
4	multiple other causes	4/29/2021 1:44 PM
5	evaluation of nerve grafts post-trauma	4/29/2021 1:16 PM
6	Nerve biopsies are extremely rare, but any of the above could apply. We do more postmortem biopsies than clinical	4/29/2021 1:14 PM

Q8 In how many of these nerve biopsies do you decide on the processing or staining of nerve biopsies based on the clinical information (indication for biopsy)?



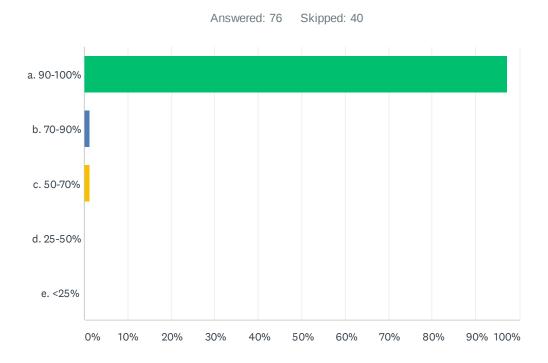
ANSWER CHOICES	RESPONSES	
a. 90-100%	44.00%	33
b. 70-90%	6.67%	5
c. 50-70%	4.00%	3
d. 25-50%	4.00%	3
e. <25% (a standard panel of tests is performed on nerve biopsies)	41.33%	31
Total Respondents: 75		

Q9 In how many of these nerve biopsies do you provide correlation with the clinical information/indication in your diagnosis?



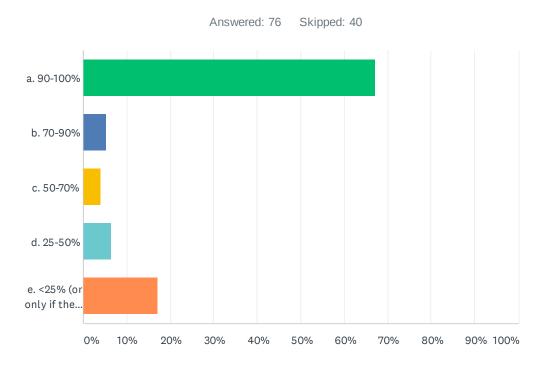
ANSWER CHOICES	RESPONSES	
a. 90-100%	61.84%	47
b. 70-90%	9.21%	7
c. 50-70%	7.89%	6
d. 25-50%	6.58%	5
e. <25%	14.47%	11
Total Respondents: 76		

Q10 In how many of these nerve biopsies do you perform H&E stain on paraffin-embedded tissue?



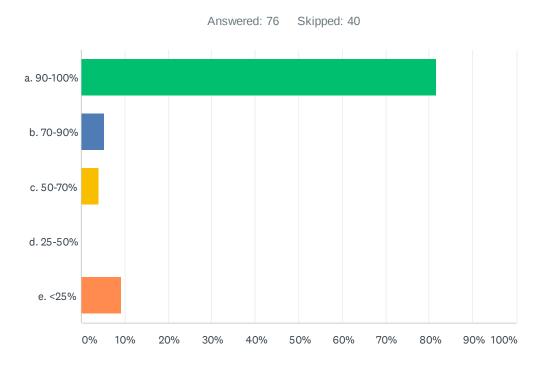
ANSWER CHOICES	RESPONSES	
a. 90-100%	97.37%	74
b. 70-90%	1.32%	1
c. 50-70%	1.32%	1
d. 25-50%	0.00%	0
e. <25%	0.00%	0
TOTAL		76

Q11 In how many do you perform a Congo red stain at your institution?



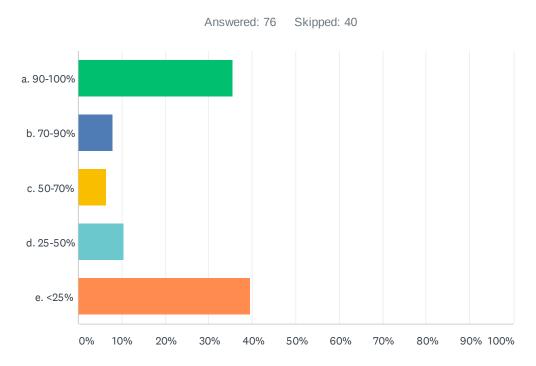
ANSWER CHOICES	RESPONSES	
a. 90-100%	67.11%	51
b. 70-90%	5.26%	4
c. 50-70%	3.95%	3
d. 25-50%	6.58%	5
e. <25% (or only if the clinical history is consistent with amyloidosis)	17.11%	13
TOTAL		76

Q12 In how many nerve biopsies at your institution do you perform semithin/Epon sections?



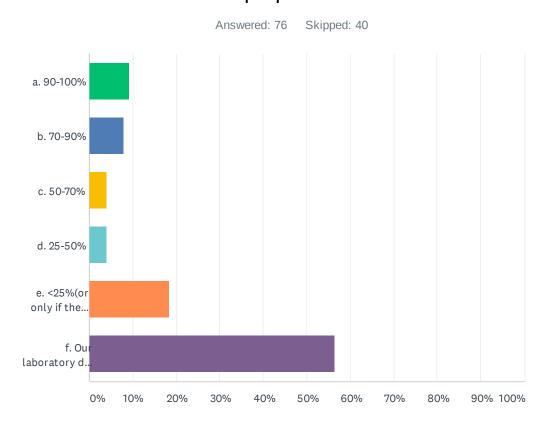
ANSWER CHOICES	RESPONSES	
a. 90-100%	81.58%	62
b. 70-90%	5.26%	4
c. 50-70%	3.95%	3
d. 25-50%	0.00%	0
e. <25%	9.21%	7
TOTAL		76

Q13 In how many nerve biopsies at your institution do you perform electron microscopy?



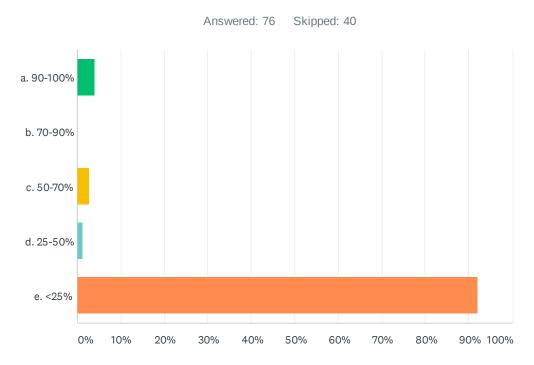
ANSWER CHOICES	RESPONSES	
a. 90-100%	35.53%	27
b. 70-90%	7.89%	6
c. 50-70%	6.58%	5
d. 25-50%	10.53%	8
e. <25%	39.47%	30
TOTAL		76

Q14 In how many nerve biopsies at your institution do you perform teased fiber preparations?



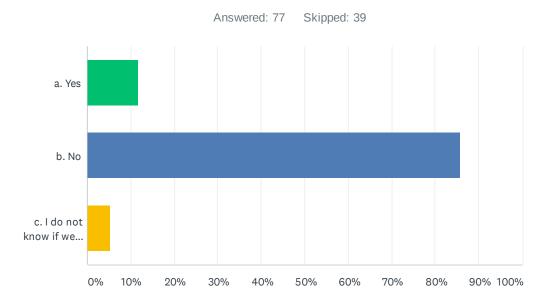
ANSWER CHOICES	RESPONSES	
a. 90-100%	9.21%	7
b. 70-90%	7.89%	6
c. 50-70%	3.95%	3
d. 25-50%	3.95%	3
e. <25%(or only if the clinical history is consistent with demyelination)	18.42%	14
f. Our laboratory does not perform teased fiber preparations.	56.58%	43
TOTAL		76

Q15 In how many nerve biopsies at your institution do you perform immunofluorescence microscopy on frozen sections?



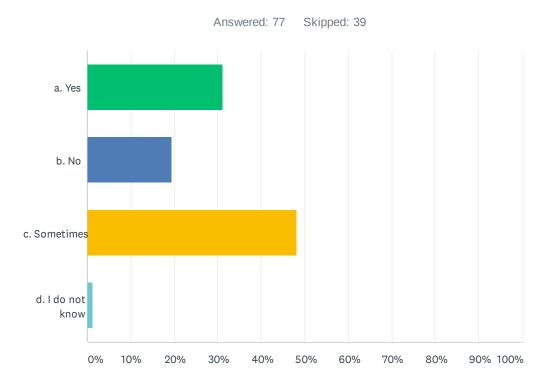
ANSWER CHOICES	RESPONSES	
a. 90-100%	3.95%	3
b. 70-90%	0.00%	0
c. 50-70%	2.63%	2
d. 25-50%	1.32%	1
e. <25%	92.11%	70
TOTAL		76

Q16 Does your group perform quantitative analysis of cutaneous (intraepidermal) nerve fiber endings as part of the workup of small fiber neuropathy?



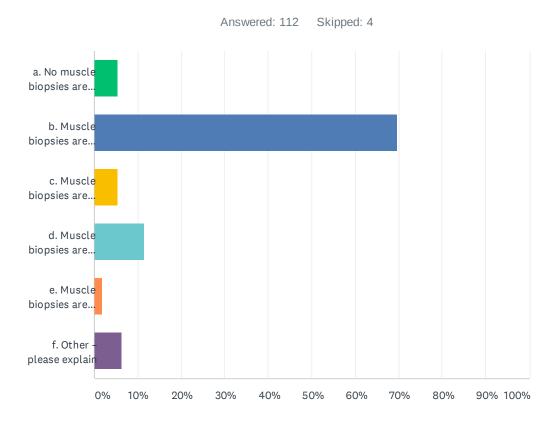
ANSWER CHOICES	RESPONSES	
a. Yes	11.69%	9
b. No	85.71%	66
c. I do not know if we offer that service	5.19%	4
Total Respondents: 77		

Q17 Does your institution perform post-mortem diagnostic nerve biopsies in patients with history of neuromuscular disease?



ANSWER CHOICES	RESPONSES	
a. Yes	31.17%	24
b. No	19.48%	15
c. Sometimes	48.05%	37
d. I do not know	1.30%	1
TOTAL		77

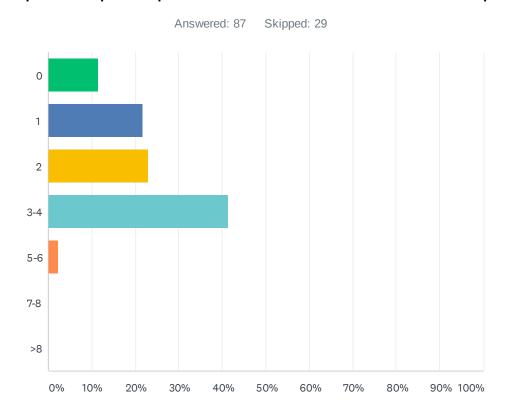
Q18 Who evaluates the muscle biopsies at your institution (e.g. quadriceps biopsies)?



ANSWER CHOICES	RESPONSES	
a. No muscle biopsies are performed at my institution.	5.36%	6
b. Muscle biopsies are interpreted at my institution by Neuropathology.	69.64%	78
c. Muscle biopsies are interpreted at my institution by Neurology.	5.36%	6
d. Muscle biopsies are sent to an outside academic lab/institution.	11.61%	13
e. Muscle biopsies are sent to a commercial lab	1.79%	2
f. Other – please explain	6.25%	7
TOTAL		112

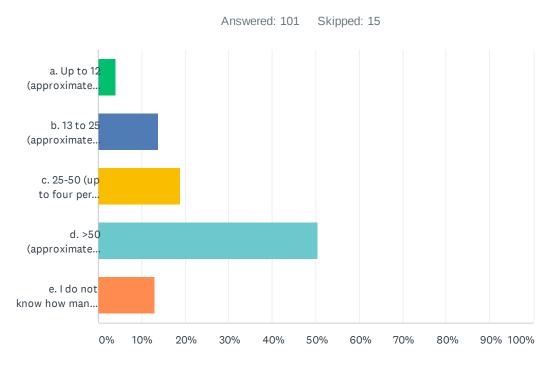
#	F. OTHER – PLEASE EXPLAIN	DATE
1	I am a NP at a commercial lab who examines muscle biopsies	5/14/2021 8:50 AM
2	My institution is research-only, no clinical diagnostics are performed.	5/10/2021 7:13 PM
3	Only pediatric cases examined by pediatric pathologists	4/30/2021 6:59 AM
4	Both Neuropathology and Neurology (complementary)	4/29/2021 5:39 PM
5	No idea	4/29/2021 4:01 PM
6	Again, both Neurology and Neuropathology	4/29/2021 3:11 PM
7	The lab is run by neuropathology but there is one neuropathologist and one neurologist who perform the diagnoses of the slides	4/29/2021 1:14 PM

Q19 If performed in neuropathology, how many members in your neuropathology group evaluate and sign-out muscle biopsies (e.g. vastus lateralis/quadriceps biopsies, or other skeletal muscle biopsies)?



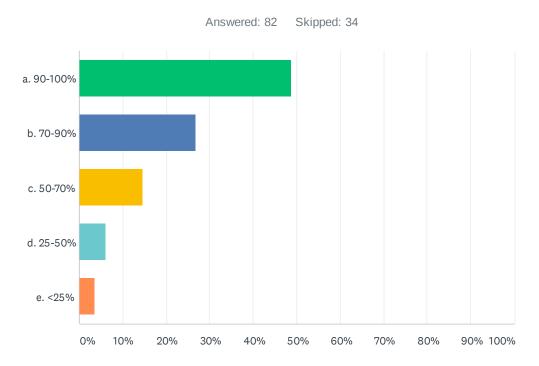
ANSWER CHOICES	RESPONSES	
0	11.49%	10
1	21.84%	19
2	22.99%	20
3-4	41.38%	36
5-6	2.30%	2
7-8	0.00%	0
>8	0.00%	0
TOTAL		87

Q20 Approximately how many muscle biopsies do you process at your institution per year?



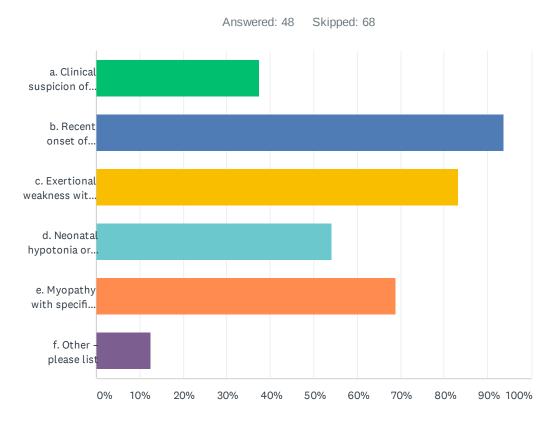
ANSWER CHOICES	RESPONSES	
a. Up to 12 (approximately one per month)	3.96%	4
b. 13 to 25 (approximately two per month)	13.86%	14
c. 25-50 (up to four per month)	18.81%	19
d. >50 (approximately more than one per week)	50.50%	51
e. I do not know how many are performed	12.87%	13
TOTAL		101

Q21 In how many of these muscle biopsies do you have access to the clinical information (indication for the biopsy)?



ANSWER CHOICES	RESPONSES	
a. 90-100%	48.78%	40
b. 70-90%	26.83%	22
c. 50-70%	14.63%	12
d. 25-50%	6.10%	5
e. <25%	3.66%	3
TOTAL		82

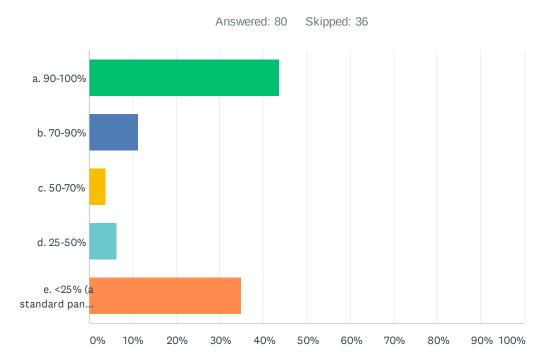
Q22 What are common indications for a muscle biopsy in your institution/group?



ANSWER CHOICES	RESPONSES	
a. Clinical suspicion of vasculitis.	37.50%	18
b. Recent onset of weakness with or without myalgias.	93.75%	45
c. Exertional weakness with elevation of creatine kinase.	83.33%	40
d. Neonatal hypotonia or infantile weakness.	54.17%	26
e. Myopathy with specific histologic findings that are diagnostic (e.g. nemaline myopathy).	68.75%	33
f. Other – please list	12.50%	6
Total Respondents: 48		

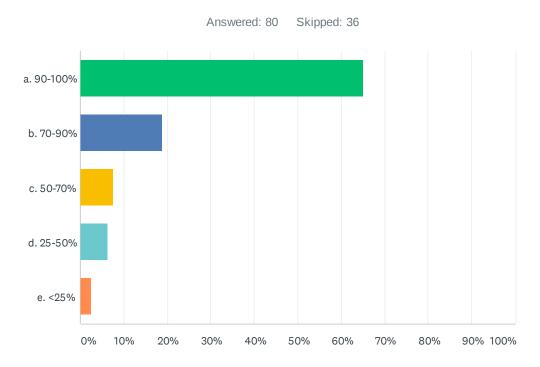
#	F. OTHER - PLEASE LIST	DATE
1	HyperCKemia	5/14/2021 8:50 AM
2	R/O Inflammatory myopathy	5/5/2021 3:08 AM
3	Chronic weakness with negative genetic testing.	5/1/2021 12:10 PM
4	Suspicion of inclusion body myositis, also NAM.	4/29/2021 3:34 PM
5	Suspected inclusion body myositis	4/29/2021 3:34 PM
6	Uninterpretable VUS on genetic testing, referrals from other neuropathologists for muscular dystrophy stains	4/29/2021 2:56 PM

Q23 In how many of these muscle biopsies do you decide on the processing or staining of the biopsies based on the clinical information (indication for biopsy)?



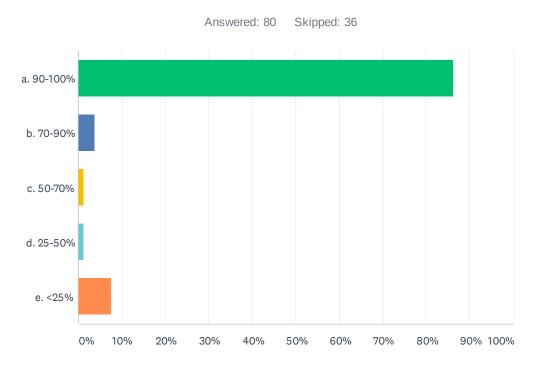
ANSWER CHOICES	RESPONSES	
a. 90-100%	43.75%	35
b. 70-90%	11.25%	9
c. 50-70%	3.75%	3
d. 25-50%	6.25%	5
e. <25% (a standard panel of tests is performed on muscle biopsies)	35.00%	28
TOTAL		80

Q24 In how many of these muscle biopsies do you provide correlation with the clinical information/indication in your diagnosis?



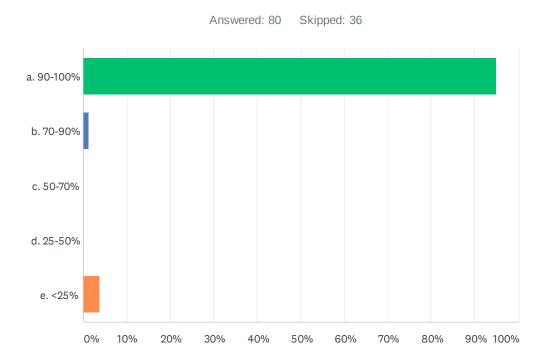
ANSWER CHOICES	RESPONSES	
a. 90-100%	65.00%	52
b. 70-90%	18.75%	15
c. 50-70%	7.50%	6
d. 25-50%	6.25%	5
e. <25%	2.50%	2
TOTAL		80

Q25 In how many of these muscle biopsies do you perform H&E stain on paraffin-embedded tissue?



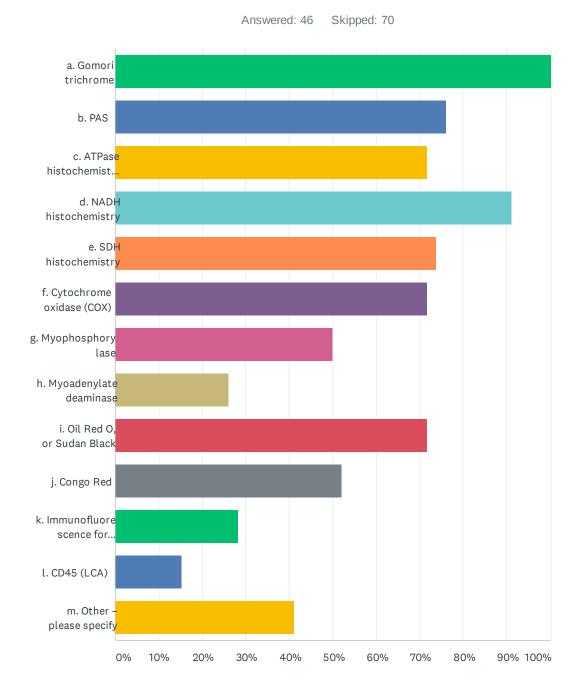
ANSWER CHOICES	RESPONSES	
a. 90-100%	86.25%	69
b. 70-90%	3.75%	3
c. 50-70%	1.25%	1
d. 25-50%	1.25%	1
e. <25%	7.50%	6
TOTAL		80

Q26 In how many of these muscle biopsies do you perform frozen section histochemistry (e.g. NADH, ATPase) at your institution?



ANSWER CHOICES	RESPONSES	
a. 90-100%	95.00%	76
b. 70-90%	1.25%	1
c. 50-70%	0.00%	0
d. 25-50%	0.00%	0
e. <25%	3.75%	3
TOTAL		80

Q27 If you perform a panel on all muscle biopsies, which of the following testing is performed on every biopsy, regardless of clinical history?

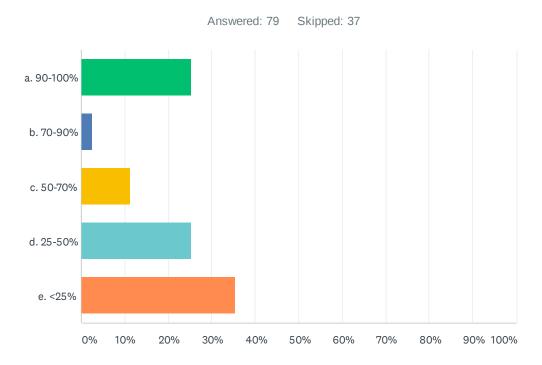


ANSWER CHOICES	RESPONS	ES
a. Gomori trichrome	100.00%	46
b. PAS	76.09%	35
c. ATPase histochemistry (at one or more pH's)	71.74%	33
d. NADH histochemistry	91.30%	42
e. SDH histochemistry	73.91%	34
f. Cytochrome oxidase (COX)	71.74%	33
g. Myophosphorylase	50.00%	23
h. Myoadenylate deaminase	26.09%	12
i. Oil Red O, or Sudan Black	71.74%	33
j. Congo Red	52.17%	24
k. Immunofluorescence for inflammatory markers (Membrane Attach Complex/MAC/C5b-9; CD4/8)	28.26%	13
I. CD45 (LCA)	15.22%	7
m. Other – please specify	41.30%	19
Total Respondents: 46		

#	M. OTHER - PLEASE SPECIFY	DATE
1	Myosin heavy chain fast and slow isoforms	5/14/2021 8:50 AM
2	CD3, CD20	5/12/2021 9:38 AM
3	Myosin Fast and Slow IHC	5/9/2021 12:30 PM
4	Immunohistochemistry for CD20, CD3, CD163, CD56, Desmin, Fast-myosin, Slow-myosin	5/5/2021 3:08 AM
5	Fast and slow myosin immunohistochemistry	5/4/2021 4:43 PM
6	Acid phos, Alkaline phosphatase	5/3/2021 8:51 AM
7	Beta-Spectrin, Alpha-Sarcoglykan,Beta-Sarcoglykan,Gamma-Sarcoglykan, Delta-Sarcoglykan, Dystrophin (N-terminus), Dystrophin (C-terminus), Dystrophin (Rod Domain), Dysferlin, TRIM 32, Titin, Emerin, Telethonin, POMT1, Myotilin, Lamin A/C, Caveolin-3, Actinin, Laminin2, Collagen VI, Desmin, Myosin fast, Myosin slow, Myosin neonatal, Vimentin, Utrophin	5/3/2021 5:46 AM
8	Myosin immunohistochemistry (for fiber typing)	5/1/2021 12:10 PM
9	fast and slow myosin	4/30/2021 9:21 PM
10	Myosin immunohisochemisty, MHC class 1 immunofluorescence, Alk Phos	4/30/2021 3:40 PM
11	Thioflavin (also for nerves, but nowhere to note this)	4/30/2021 12:54 PM
12	Acid phosphatase, esterase, MHC1, developmental/neonatal myosin, slow/fast myosin	4/30/2021 11:49 AM
13	immunohistochemistry for inflammatory markers CD3/20/68	4/30/2021 8:51 AM
14	phosphofructokinase, esterase, acid phosphatase	4/29/2021 5:28 PM
15	frozen H&E frozen dual myosin ipox (instead of ATPase); frozen MHC-I ipox	4/29/2021 5:26 PM
16	NSE, acid phosphatase	4/29/2021 4:56 PM
17	myosin fast and slow IHC	4/29/2021 4:33 PM
18	CD 56, myosin heavy chain isoforms	4/29/2021 3:34 PM

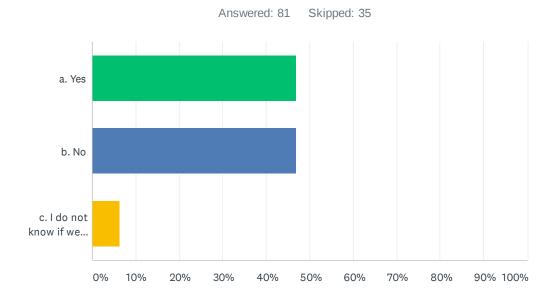
19 IHC for myosins (fast, slow, neonatal), combined COX/SDH, acid phosphatase 4/29/2021 3:06 PM

Q28 In how many muscle biopsies at your institution do you perform semithin Epon sections and/or electron microscopy:



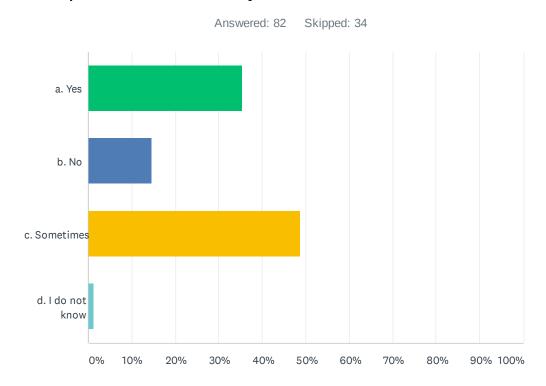
ANSWER CHOICES	RESPONSES	
a. 90-100%	25.32%	20
b. 70-90%	2.53%	2
c. 50-70%	11.39%	9
d. 25-50%	25.32%	20
e. <25%	35.44%	28
TOTAL		79

Q29 Does your laboratory process needle biopsies of skeletal muscle for diagnosis of neuromuscular disease (rather than neoplastic disease)?



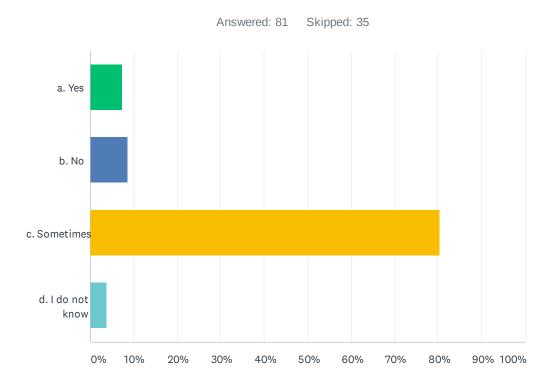
ANSWER CHOICES	RESPONSES	
a. Yes	46.91%	38
b. No	46.91%	38
c. I do not know if we offer that service	6.17%	5
TOTAL		81

Q30 Does your institution perform post-mortem diagnostic muscle biopsies in patients with history of neuromuscular disease?



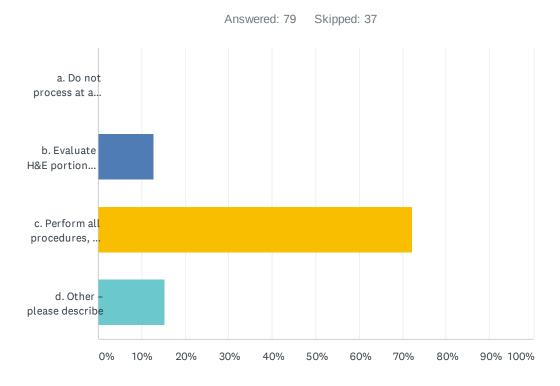
ANSWER CHOICES	RESPONSES	
a. Yes	35.37%	29
b. No	14.63%	12
c. Sometimes	48.78%	40
d. I do not know	1.22%	1
TOTAL		82

Q31 How often do you receive suboptimal neuromuscular samples, such as floating in saline, submitted in formalin, or autolyzed?



ANSWER CHOICES	RESPONSES	
a. Yes	7.41%	6
b. No	8.64%	7
c. Sometimes	80.25%	65
d. I do not know	3.70%	3
TOTAL		81

Q32 How do you handle a sample that has not undergone the optimal processing described in your procedures?



ANSWER CHOICES	RESPONSES	
a. Do not process at all, and request another biopsy.	0.00%	0
b. Evaluate H&E portion only, and do not perform special procedures.	12.66%	10
c. Perform all procedures, and describe limitations in the report.	72.15%	57
d. Other – please describe	15.19%	12
TOTAL		79

#	D. OTHER - PLEASE DESCRIBE	DATE
1	Perform all possible procedures, and describe limitations in the report	5/5/2021 3:08 AM
2	This depends on the issue: if in formalin do a limited panel; if in saline we try to dry them out and peform full panels	5/4/2021 4:43 PM
3	Perform only tests that will give information, and describe limitations	4/30/2021 5:22 PM
4	We collect all muscle specimens ourselves directly from the OR	4/30/2021 6:59 AM
5	Perform as much testing as possible and describe limitations in report	4/29/2021 5:49 PM
6	Depends on the case and H&E stained material	4/29/2021 3:11 PM
7	Thaw and refreeze, and perform all procedures and describe limitations as well	4/29/2021 2:56 PM
8	Reprocess and performed all procedures. More than 80% of the time it works well. It just takes time and introduce artifacts that one has to be aware of	4/29/2021 2:15 PM
9	Evaluate cryo HE, and decide other stains	4/29/2021 1:48 PM
10	Depends on suboptimal tissue	4/29/2021 1:18 PM

11	Recovery by thawing/refreezing a portion, according to methods we have published	4/29/2021 1:14 PM
12	very rare for this to happen	4/29/2021 1:05 PM

SurveyMonkey

Practice Survey 2021

Q33 Do you have any additional comments that you would like to share?

Answered: 23 Skipped: 93

#	RESPONSES	DATE
1	Thanks for doing this	5/3/2021 4:51 PM
2	As a professor emeritus, I have not been directly involved in signing out cases for more than 10 years. Thanks.	4/30/2021 10:21 PM
3	Pediatric hospital and regional reference center; consult cases occasionally include adults	4/30/2021 9:21 PM
4	The nerve question asked if we perform Congo Red on nerves, but we perform Thioflavin immunoflourescence on all nerves.	4/30/2021 12:54 PM
5	I very much would like to see more muscle lectures in the upcoming AANP meetings. I don't think many neuropathologists appreciate the vast number of changes that have taken place in the last decade in the neuromuscular field, especially in the area of inflammatory myopathies, and it would be nice to get some lectures from experts in the field.	4/30/2021 8:51 AM
6	At our institution adult biopsies are handled at neurology while peds biopsies are done by pediatric pathologists not neuropathologists.	4/30/2021 6:59 AM
7	I retired and no practice any more in the hospital	4/29/2021 8:29 PM
8	We need to educate surgeons and neurologist on the proper handling of muscle/nerve biopsies.	4/29/2021 5:52 PM
9	For nerve biopsies, we perform immunofluorescence studies for immunoglobulins and complement on FFPE rather than frozen tissue when needed.	4/29/2021 5:26 PM
10	None. Our service has changed from hereditary myopathies to mainly myositis cases, since the hereditary forms are now diagnosed by molecular study.	4/29/2021 3:34 PM
11	We do have a basic panel For nerve biopsy: HE 2 levels beginning and end, in between Congo red and MOVAT and unstains slides in case we see focal changes. We prefer MOVAT rather than trichrome as it gives much more information: collagen(new old), myelin, elastic lamina, blood, etc	4/29/2021 2:15 PM
12	Our institution is a Children's Hospital. the evaluation is standard with EM for all cases , but cases are not many We see rarely inflammatory myopathies	4/29/2021 2:01 PM
13	Thank you.	4/29/2021 1:44 PM
14	Muscle biopsies are time consuming to report, yet billed as 88305. The billing code does not reflect the amount of work involved	4/29/2021 1:41 PM
15	For 32c that would be all available procedures - we advise rebiopsy for procedures needing frozen tissue	4/29/2021 1:37 PM
16	My main medical center is opening a core musculoskeletal center in the near future. We do no muscle or nerve biopsies, but send them to a busy near by hospital. I have emphasized recently to my Chair that Pathology must hire a full time Neuropathologist (for all neuropath services). I am retired, no malpractice insurance money is available, and we have agreed that I will only teach as of this past week. I used to do multiple nerve and muscle biopsies most weeks, but at a different medical school.	4/29/2021 1:24 PM
17	Your algorithm does not allow for multiple selections. We have a core muscle panel that we then tailor to the clinical history,	4/29/2021 1:18 PM
18	Electron microscopy is performed on all nerve biopsies and about 50% of muscle biopsies-scoping performed by neuropathologists.	4/29/2021 1:17 PM
19	In my experience: - The presence/availability of a special lab and/or trained tech in the Institution is the main problem Any thick section/EM is always a send out TAT is the main deal-breaker with any consult/outreach cases.	4/29/2021 1:15 PM

	Practice Survey 2021	SurveyMonkey
20	Outside of a volume assessment for this sort of stuff, it would also be interesting to get some sort of quality survey about what results are obtained from send-out labs. There are some send-out labs for neuromuscular pathology that offer all the stains and have friendly billing purposes, but where their technical/diagnostic quality may not be sufficient for the needs of the procedure.	4/29/2021 1:14 PM
21	We need to be able to mark more than one answer in this survey, say for question 27. Also, I get 3 nerves/year. Thanks for having muscle didactic for education AANP. Where to send for dystrophy panels, NGS panels, and such would be nice for a solo neuropath guy who does surgpath as well. Lots to keep up on.	4/29/2021 1:13 PM
22	There aren't sufficient numbers of neuromuscular evaluations in my region of practice to warrant having a muscle/nerve practice. All of our specimens are sent to Arkana Labs for evaluation.	4/29/2021 1:09 PM
23	none	4/29/2021 1:07 PM