A Survey of LMPG Users – Informing Process Improvements

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Presentation Objectives

After attending this presentation, participants will be able to:

- **Understand key findings and discuss results of 2008 electronic survey of users of NACB LMPGs and other CPGs**
- **Identify common challenges, typical barriers and helpful resources for those responsible for practice guideline implementation**
- **Describe opportunities for process improvement in development, implementation and application of LMPGs and other CPGs**

Background

The National Academy of Clinical Biochemistry is the Academy of the American Association for Clinical Chemistry and is dedicated to advancing the science and practice of clinical laboratory medicine through research, education, and professional development …. It publishes Laboratory Medicine Practice Guidelines (LMPG) for the application of clinical biochemistry to medical diagnosis and therapy.

Since 1994, NACB has developed consensus-based guidelines for the laboratory evaluation and monitoring of patients with specified disorders. After a series of public presentations and reviews designed to reach consensus among the experts, the guidelines are published online.

- **In the ≈ 15 years that have passed during this effort, NACB:**
  - **Developed or is developing 17 lab management practice guidelines**
  - **Collaborated with numerous clinical and professional organizations**
  - **Leadership has continued to actively evaluate the process**
  - **Leaders and the 2008 AMOC agreed to provide the present opportunity**

Survey Overview

- NACB and 2008 AMOC leaders agreed a NACB symposium would include results of a survey on practical, 'real-world' issues from LMPG and other practice guideline users focusing on implementation
- Loyola University Health System has a process and Kahn was invited by symposium organizers to present survey results
- Symposium workgroup collected, reviewed and discussed evidence regarding practice guideline development and implementation
- Draft survey was created over a few cycles of discussion and revision
- Volunteers including current NACB BOD took survey for a test drive
- Survey was distributed to $\approx$ 10,000 lab contacts in the CLN database with request to have the survey taken by the 'most appropriate person'
- Potential respondents had 30 days to take the Survey Monkey survey
- > 500 completed all or part of the survey and results were analyzed …

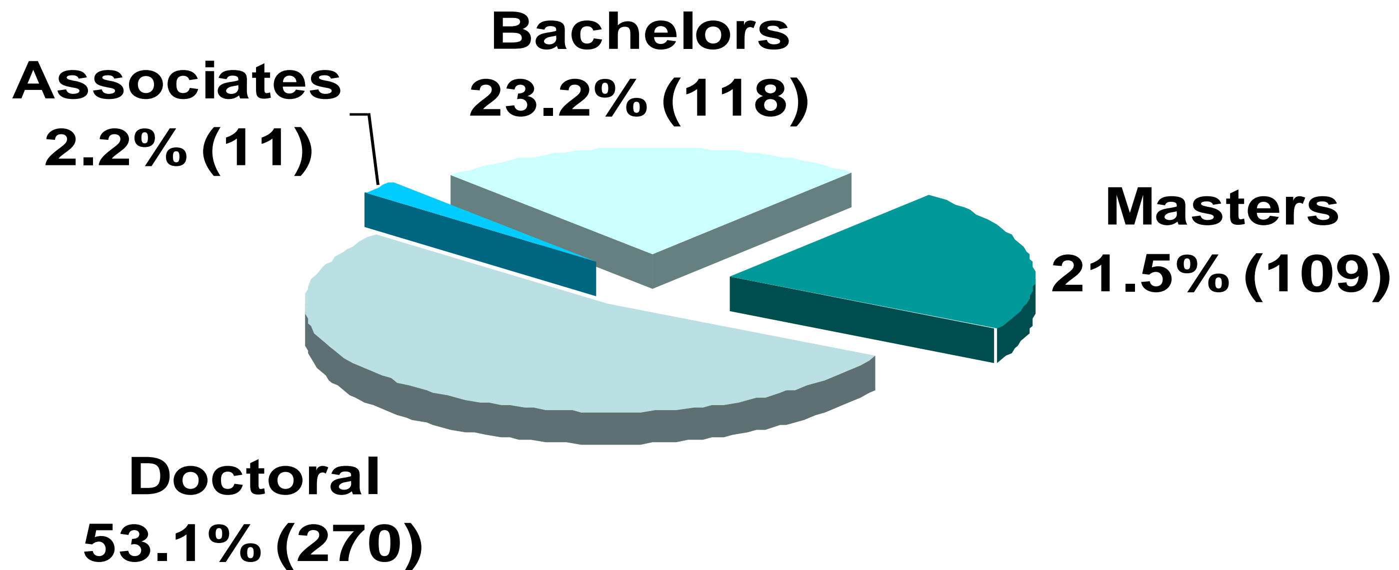
Association Membership

	No	Yes
AACC	28.50%	71.50%
NACB	74.20%	25.80%

Answered Question (AQ) – 506
Skipped Question (SQ) – 3

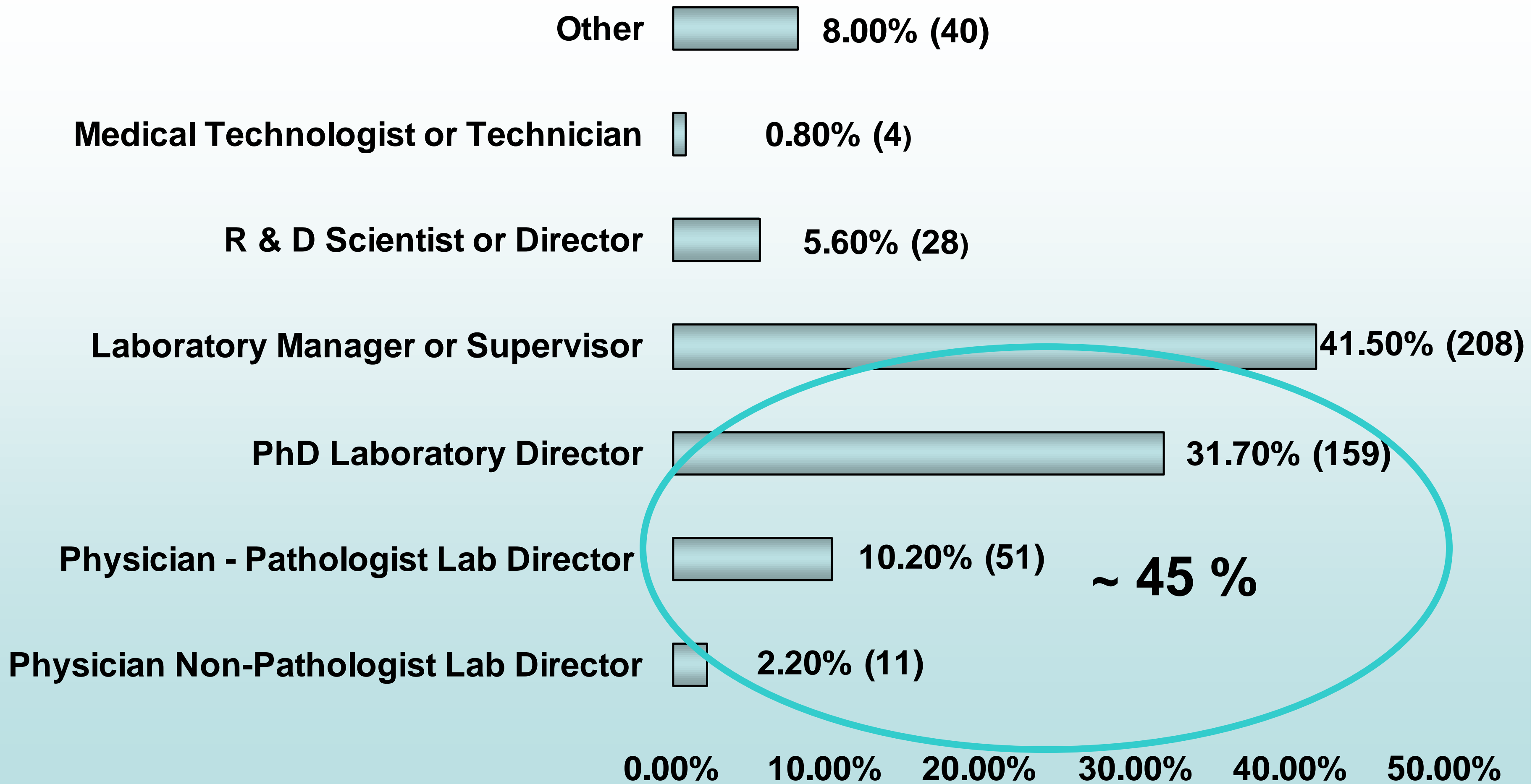
AQ - 503 SQ - 6

Highest Educational Degree



AQ – 508 SQ – 1

Primary Job Title



AQ - 501 SQ - 8

Primary Work Setting *

Primary Work Setting	Percent (n)
Other Type of Laboratory	11.20% (56)
In Vitro Diagnostics Company	7.60% (38)
Independent, Reference or Commercial Laboratory	15.50% (77)
Hospital - Non-Academic Medical Center	28.70% (143)
Hospital - Academic Medical Center	36.90% (184)

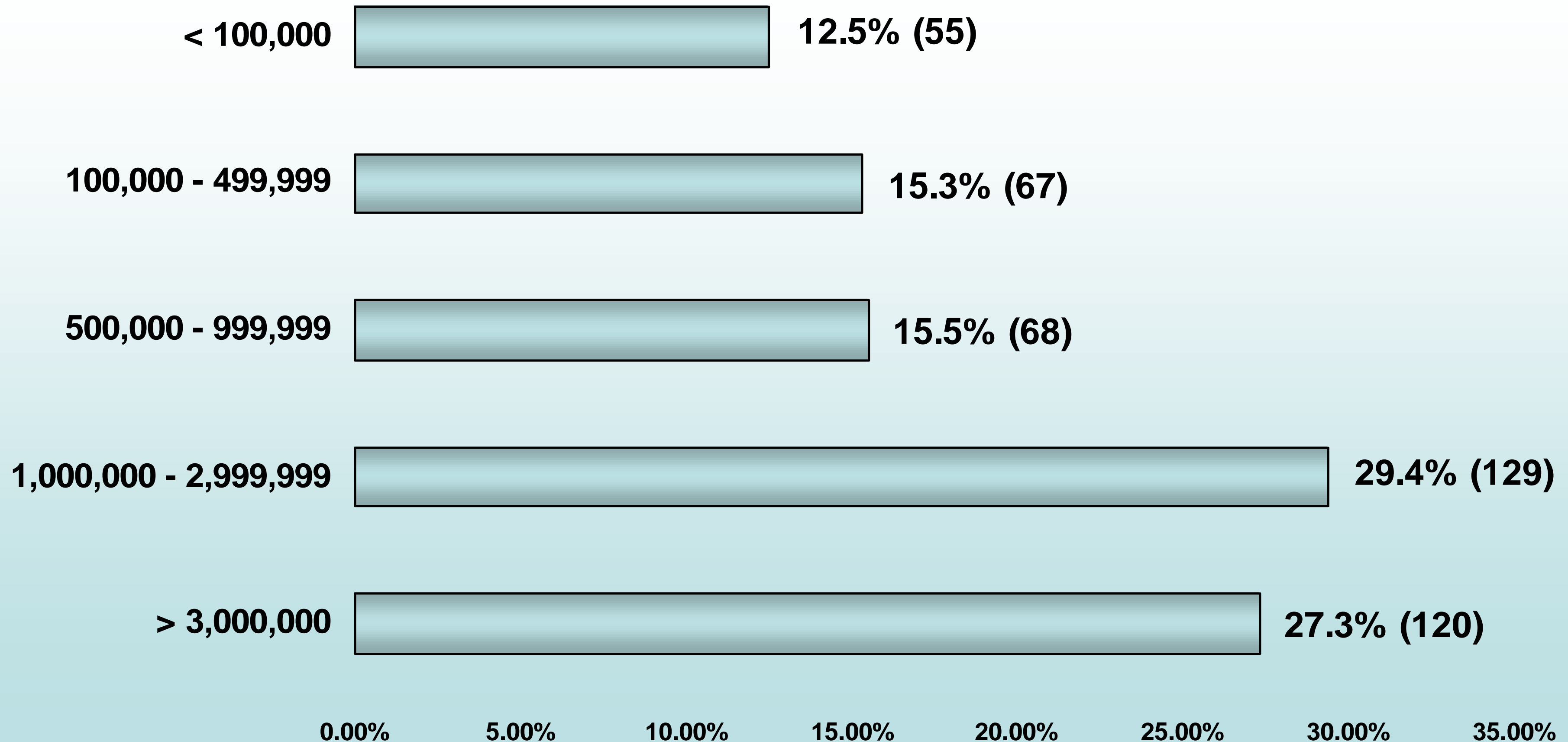
0.00% 10.00% 20.00% 30.00% 40.00%

* Many subsequent questions answered by 300 - 320

AQ - 498 SQ - 11

Billables: Hospital or Reference Labs

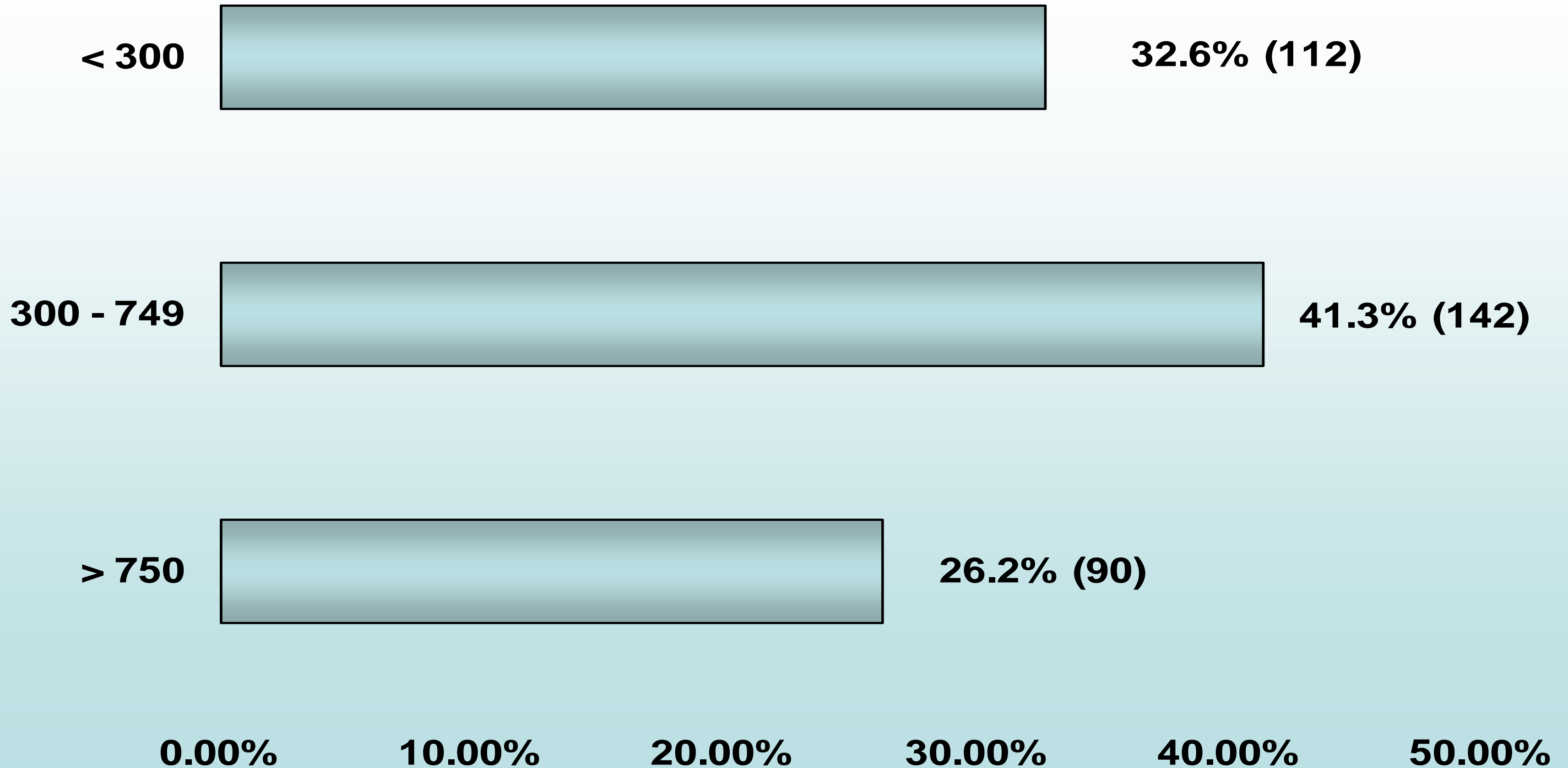
If your primary work setting is any type of hospital or reference lab, annual number of billable laboratory tests is:



AQ - 439 SQ - 70

Number of Beds in Hospitals

If your primary work setting is any type of hospital laboratory, the number of beds in your hospital is



AQ - 344 SQ - 165

Hospital is Part of IHCDS or Network

If your primary work setting is hospital based, is your hospital part of an integrated healthcare delivery system and/or multihospital network?

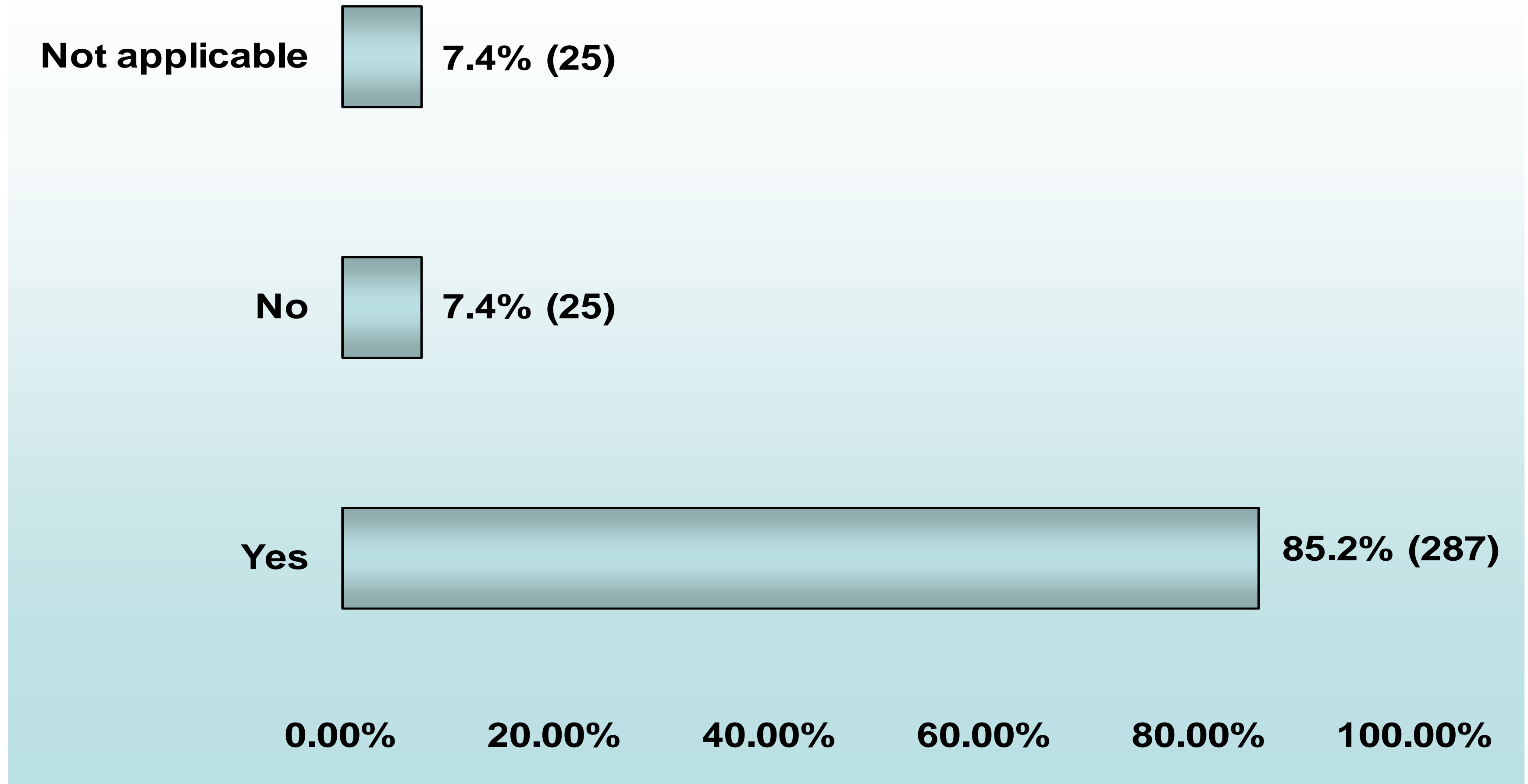
Response	Percent (n)
No	36.9% (131)
Yes	63.1% (224)

0.00% 10.00% 20.00% 30.00% 40.00% 50.00% 60.00% 70.00%

AQ - 355 SQ - 154

Impact of Clinical LPG’s

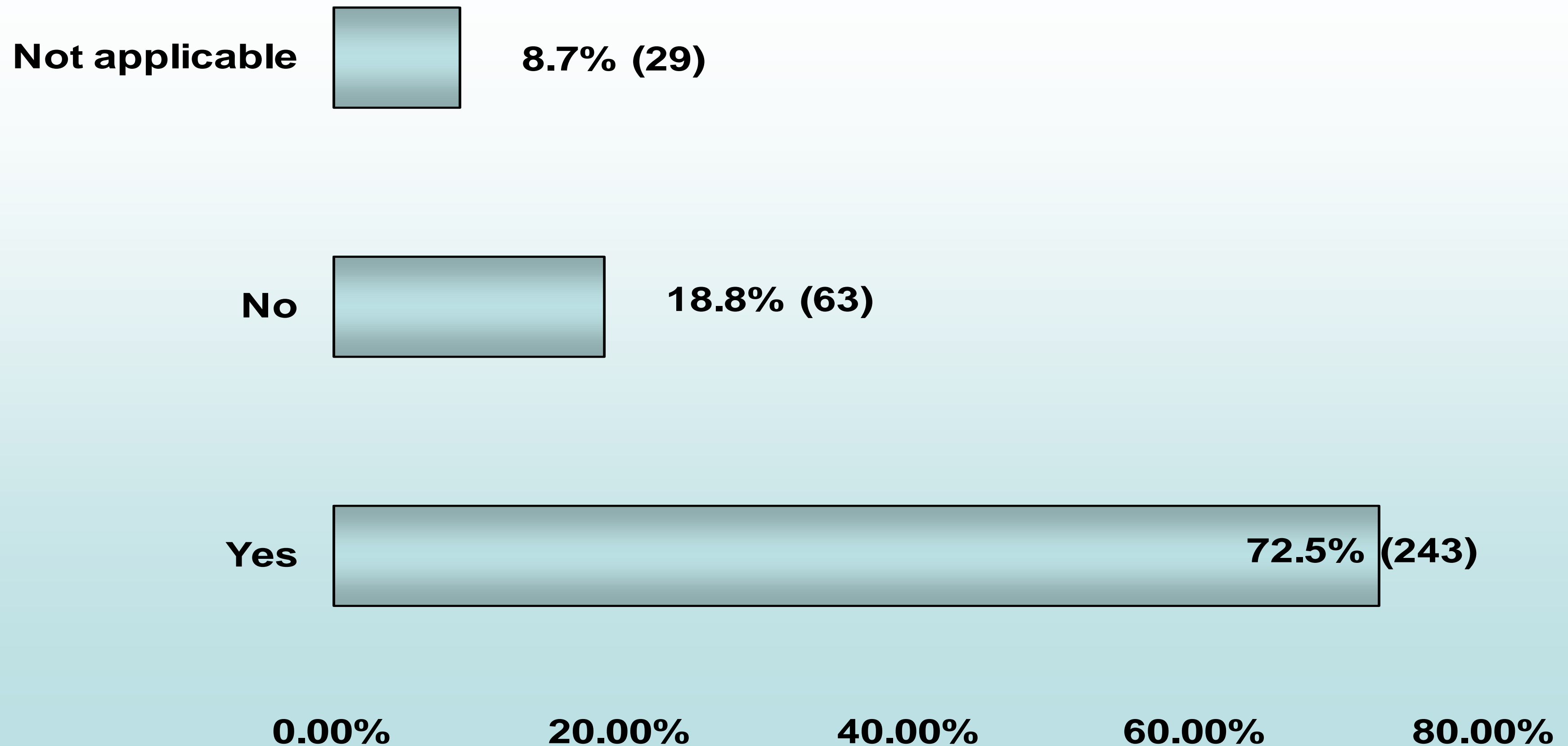
Clinical laboratory practice guidelines impact clinical practice in your work setting



AQ - 337 SQ - 172

Guidelines Drive Clinical Practice

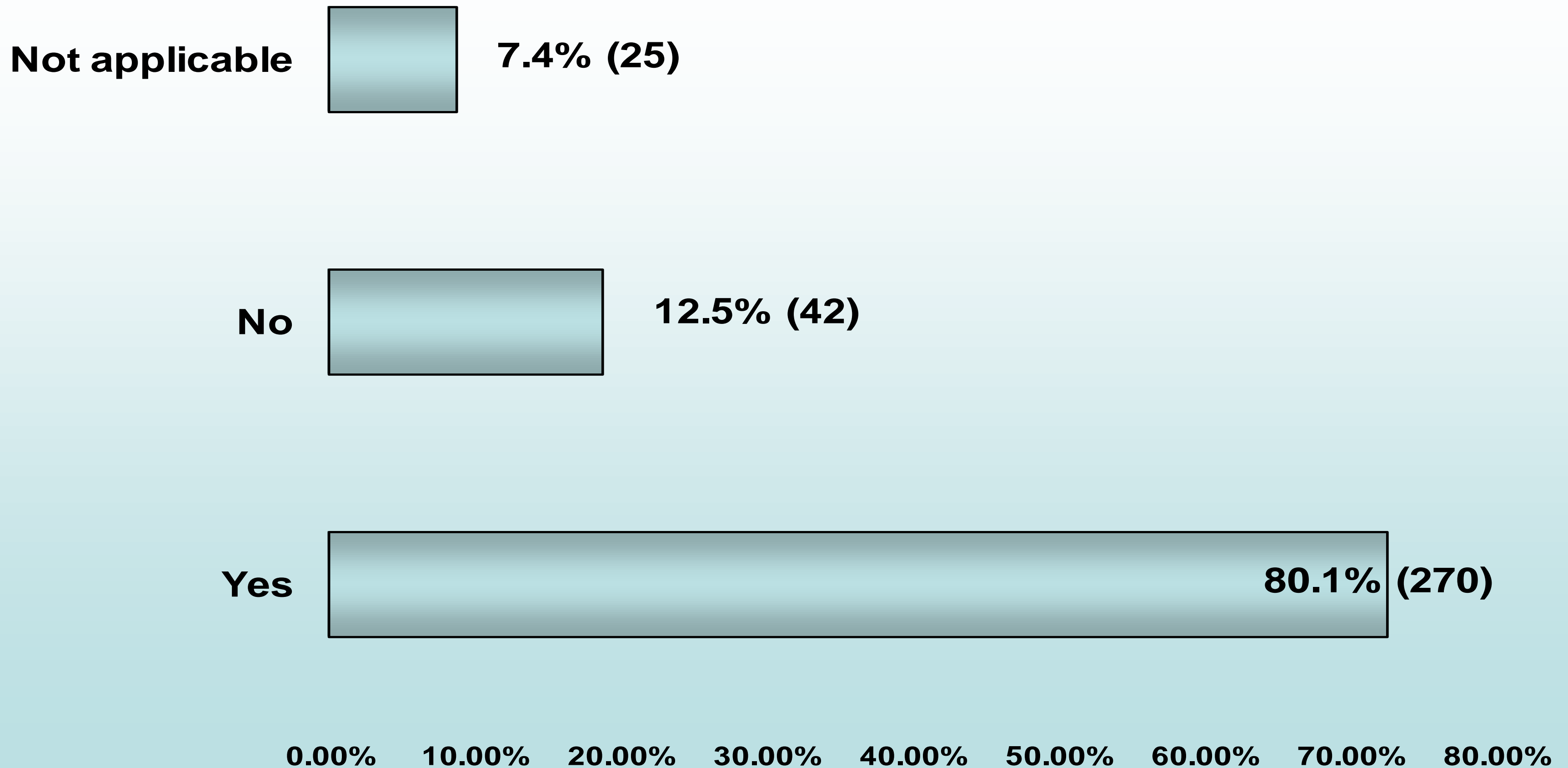
Clinical laboratory practice guidelines drive clinical practice changes in your work setting



AQ - 335 SQ - 174

Guidelines Impact Laboratory Use

Clinical laboratory practice guidelines drive impact the use of the laboratory in your work setting



AQ - 337 SQ - 172

Which of the following orgs have developed clin lab practice guidelines that impact clinical practice and/or use of the lab in your work setting?

	Yes	No	I don't know	Response Count
American Diabetes Association	**78.0% (234)**	11.0% (33)	11.0% (33)	300
CLSI	**75.6% (229)**	11.2% (34)	13.2% (40)	303
CDC	**70.2% (205)**	14.0% (41)	15.8% (46)	292
American College Cardiology	**69.6% (204)**	13.7% (40)	16.7% (49)	293
NACB	**60.5% (184)**	19.4% (59)	20.1% (61)	304
American Association of Pediatrics	**46.2% (128)**	26.7% (74)	27.1% (75)	277
Amer Assoc Clin Endo	**45.7% (134)**	23.2% (68)	31.1% (91)	293
Agency Healthcare Rsch Quality	27.7% (79)	24.9% (71)	**47.4% (135)**	285
Other	38.1% (53)	15.1% (21)	**46.8% (65)**	139

Comments(65) – 40 organizations, only three ≥ 5: CAP (10); eGFR – NKF, NKDEP, states (5); Australia/Australasia (5)

AQ – 331 SQ - 178

Recommendations from the following currently published NACB LMPGs impact clinical practices and/or use of the lab in your work setting*?

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	I don't know	Response Count
Biomarkers of ACS (2007)	28.7% (93)	**40.4% (131)**	14.2% (46)	4.9% (16)	2.8% (9)	9.0% (29)	324
POCT (2007)	21.8% (70)	**37.4% (120)**	20.9% (67)	5.3% (17)	3.4% (11)	11.2% (36)	321
Maternal-fetal risk assessment (2006)	13.4% (42)	26.1% (82)	**27.7% (87)**	7.3% (23)	4.5% (14)	21.0% (66)	314
Emergency toxicology (2005)	12.2% (38)	27.9% (87)	**28.5% (89)**	9.6 % (30)	3.5% (11)	18.3% (57)	312
Tumor markers in the clinic (2003)	15.5% (50)	**29.8% (96)**	28.6% (92)	7.5% (24)	3.4% (11)	15.2% (49)	322

* Two categories with highest percentage shaded

AQ – 329 SQ - 180

NACB

Specific recommendations of Biomarkers of ACS that are followed include

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	I don't know	Response Count
Lab should perform CM testing with a TAT of ~ 1 hr or less	**57.5% (188)**	26.9% (88)	7.3% (24)	1.5% (5)	1.8% (6)	4.9% (16)	327
Max conc of cTn > 99th % (cv<10%) for ref. control group on at least once during first 24 hr after clin event (obs rise & fall helpful).If necessary, use of CK-MB w/ criteria on 2 samples	**37.0 % (114)**	30.8% (95)	14.0% (443)	5.8% (18)	1.6% (5)	10.7% (33)	308
BNP or NT-proBNP can be used in acute setting to r/o or confirm dx of HF in pts with ambiguous signs & symptoms	35.1% (114)	**36.3% (118)**	12.9% (42)	4.6% (15)	2.2% (7)	8.9% (29)	325

Strongly Agree + Agree: ~84% (row 1), ~68% (row 2), ~71% (row 3)

AQ – 330 SQ - 179

NACB

Specific recommendations of Emergency Toxicology followed include

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	I don't know	Response Count
Lab should provide 2 tiers of drug tstg. STAT testing of selected quant tests in S or P and qual tests in urine. Selected drugs not done STAT and others only done in certain areas	18.0% (58)	**35.0% (113)** **~53%**	21.7% (70)	6.5% (21)	1.9% (6)	17.0% (55)	323
Ideal TAT for Tier 1 toxicology is 1 hr or less except where noted	28.9% (89)	**37.0% (114)** **~66%**	16.2% (50)	2.3% (7)	1.0% (3)	14.6% (45)	308
Tier 2 - IP's where 'comprehensive' screening panel is necessary w/ drugs beyond Tier 1 for long term mgt and lab works with other IC providers	13.3% (42)	**45.9% (145)** **~59%**	21.8% (69)	3.2% (10)	0.9% (3)	14.9% (47)	316

AQ – 326 SQ - 183

Recommendations from the following archived NACB LMPGs impact clinical practices and/or use of the laboratory in your work setting

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	I don't know	Response Count
Diabetes Mellitus (2002)	25.7% (82)	**43.3% (138)**	13.5% (43)	4.1% (13)	1.6% (5)	11.9% (38)	319
Thyroid Disease (2002)	21.8% (70)	**42.0% (133)**	18.3% (58)	3.2% (10)	1.6% (5)	13.2% (42)	317
Hepatic Injury (2000)	11.3% (35)	**32.2% (100)**	30.9% (96)	3.5% (11)	1.6% (5)	20.6% (64)	311
Cardiac Markers (1999)	25.4% (79)	**37.9% (118)**	18.3% (57)	4.2% (13)	1.6% (5)	12.5% (39)	311
TDM (1999)	12.1% (38)	**35.1% (110)**	30.4% (95)	3.8% (12)	1.3% (4)	17.3% (54)	313
Eval & Mgt of Newborns (1994)	8.3% (26)	21.5% (67)	**36.5% (114)**	5.4% (17)	5.4% (17)	3.2% (10)	312
Nutritional Status (1994)	6.5% (20)	19.4% (60)	**39.7% (123)**	7.7% (24)	3.2% (10)	23.5% (73)	310

If yes for any, describe impact (n = 54) – only common issue is selected criteria are still used the drive lab use and impact lab practice

AQ – 324 SQ - 185

Which draft NACB LMPGs should impact clinical practices and/or use of the laboratory in your work setting?

	Yes	No	I don't know	Response Count
Diabetes update (2007)	**75.2% (239)**	11.6% (37)	13.2% (42)	318
Emerging CV Risk Factors (2006)	**62.3% (195)**	16.0% (50)	21.7% (68)	313
Tumor Markers (2005)	**60.3% (190)**	17.1% (54)	22.5% (71)	315
Expanded Newborn Screening (2007)	**43.6% (137)**	30.3% (95)	26.1% (82)	314
Pharmacogenetics (2007)	**39.2% (121)**	23.9% (74)	36.9% (114)	309

AQ – 325 SQ -184

Which of the following factors are barriers to general implementation of practice guidelines in your work setting?

Factors identified as barriers to PG implementation ranked by composite score for total of Strongly Agree and Agree categories	%	Responses
Lack of cooperation (or awareness) by physicians or other users	69.5%	218 of 314
Lack of champion (either inside or outside of lab)	63.5%	197 of 310
Lack of awareness	59.4%	183 of 308
Lack of resources – staff	58.9%	182 of 309
Lack of resources – time	58.5%	182 of 311
Lack of adequate institutional system for implementation	57.9%	180 of 311
Confusion about how to implement published guidelines	56.9%	176 of 309
Lack of endorsement from leadership (admin or "decision–makers")	56.4%	176 of 312

AQ – 321 SQ -188

Which of the following factors are barriers to general implementation of practice guidelines in your work setting (continued)?

Factors identified as barriers to PG implementation ranked by composite score for total of Strongly Agree and Agree categories	%	Responses
Advances in practice preceded changes in guideline	53.4%	166 of 311
Lack of resources – financial	52.6%	163 of 310
Inability to determine best practice	49.2%	150 of 305
Guideline not evidence based	36.3%	112 of 309
Lack of applicability	35.8%	111 of 310
Other ~ 10 different categories, no major pattern	33.4%	17 of 45

AQ – 321 SQ -188

Which of the following resources have facilitated implementation of practice guidelines in your work setting?

Factors seen as resources facilitating PG implementation ranked by composite score for total of Strongly Agree and Agree categories	%	Responses
Lab dir &/or pathologist champions guideline adherence	80.1%	258 of 319
Information gathered from attending scientific meetings	72.1%	228 of 316
Non-pathologist phys. champions guideline adherence	66.7%	206 of 309
Endorsement of guideline by state or local PHL	66.2%	208 of 314
Access to library, scientific journals or internet	63.5%	200 of 315
Training programs or materials including CE programs	61.9%	195 of 315

AQ – 324 SQ -185

Which of the following resources have facilitated implementation of practice guidelines in your work setting (continued)?

Factors seen as resources facilitating PG implementation ranked by composite score for total of Strongly Agree and Agree categories	%	Responses
Endorsement of guideline by other local opinion leaders	57.5%	180 of 313
Institution-level policy for implementation of guideline	56.1%	175 of 312
Administrative or hospital support	54.3%	170 of 313
Financial resources	51.6%	162 of 314
Sufficient time to implement the guideline procedures	49.8%	155 of 311
LIS and/or middleware	43.3%	135 of 312
Electronic medical record	35.9%	111 of 310
Other - no other major resources - 43.9% responded 'I don't know'	11.2%	5 of 41

AQ – 324 SQ -185

Which of the following processes are used to implement practice guidelines in your work setting?

	Yes	No	I don't know	Response Count
Multidisciplinary work teams	**79.5% (252)**	14.8% (47)	5.7% (18)	317
Standardized order sets or critical pathways	**70.0% (219)**	20.4% (64)	9.6% (30)	313
QA indicators or monitors *	**62.0% (194)**	24.6% (77)	13.4% (42)	313
LIS, middleware and/or EMR	**58.4% (184)**	34.0 (107)	7.6% (24)	315
Application of TJC or CAP NPSGs	**57.3% (177)**	25.9% (80)	16.8% (52)	309
Intra or interinstitution quality review programs focusing on clin proc	**56.9% (178)**	31.0% (97)	12.1% (38)	313
Payer initiated quality review programs focusing on clin proc	34.8% (108)	**45.5% (141)**	19.7% (61)	310

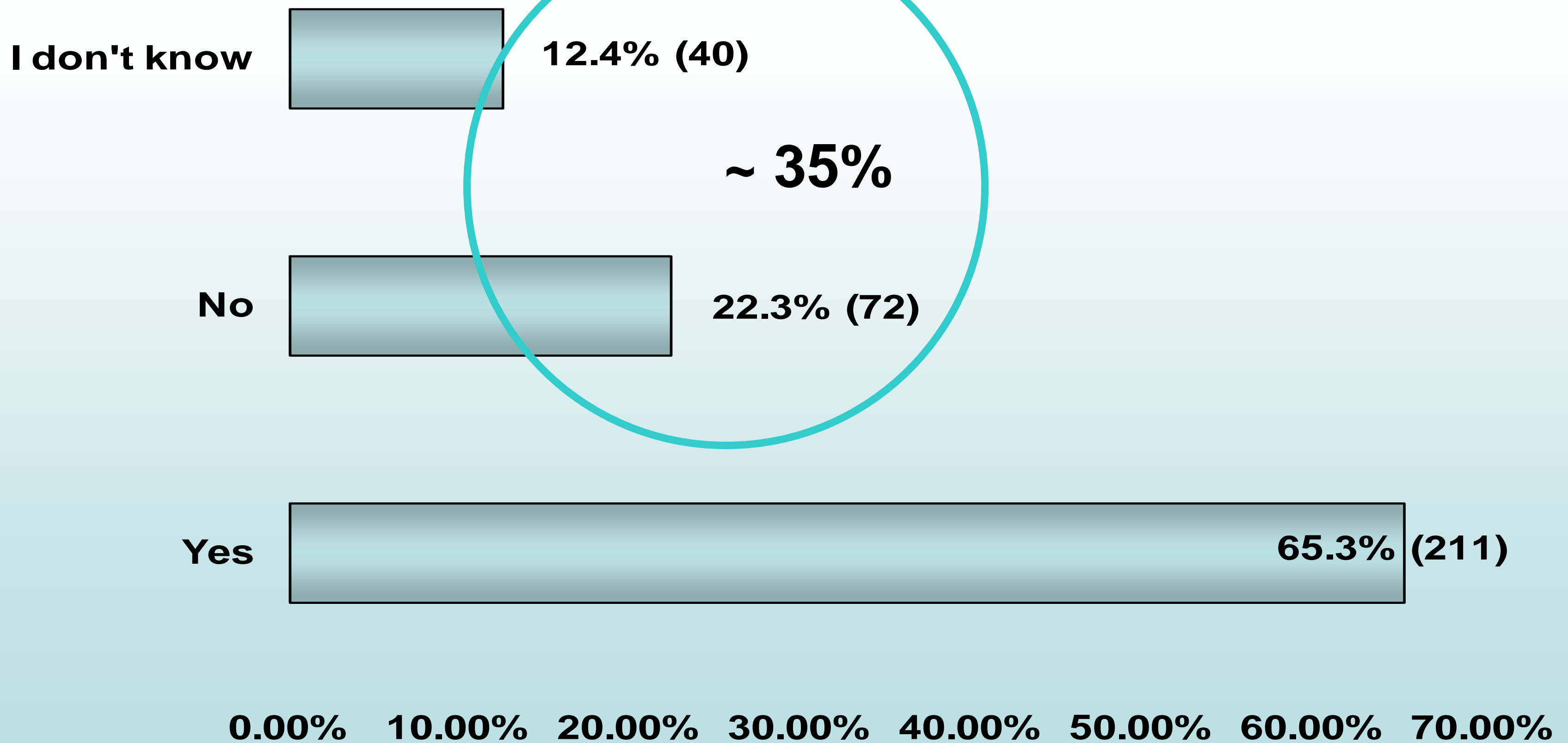
*** If QA indicators and monitors used, please describe (n =61, ~ 20 identified) – 3 > 10:**

1. **TAT monitoring (n = 15)**
2. **Audits of test use, utilization or outcomes (n = 14)**
3. **Monitoring of cardiac biomarker tests (n = 14)**

AQ – 323 SQ – 186

Audits of Adherence to Practice

Following implementation of practice guidelines in your work setting, are there audits of adherence to recommended practices



AQ - 323 SQ - 186

If there are audits of adherence to recommended practices, who is (are) responsible stakeholders?

Stakeholders in auditing adherence to recommended practices ranked by composite score for total in Strongly Agree and Agree		%	Responses
Clinical QA team or individual	(Rating = 1.83)	83.6%	208 of 249
Laboratory director and/or pathologist	(Rating = 1.86)	79.4%	204 of 257
Laboratory staff member	(Rating = 2.09)	74.5%	190 of 255
Physician non-pathologist	(Rating = 2.50)	49.6%	120 of 242
Nursing personnel	(Rating = 2.68)	46.8%	112 of 239
Other	(Rating = 2.92)	29.0%	11 of 38

10 respondents specified other types of audits including -

- Medical staff or medical executive committee
- External audit services
- Finance department as “profit determines practice”

AQ – 263 SQ -246

If there are audits of adherence to practice guideline recommendations, which of the following tools are used?

	Yes	No	I don't know	Response Count
Quality assurance audits	**86.8% (230)**	7.5% (20)	5.7% (15)	265
Lab test workload monitoring	**73.9% (195)**	19.7% (52)	6.4% (17)	264
LIS or middleware	**63.2% (165)**	25.7% (67)	11.1% (29)	261
Clinical outcomes	**60.1% (155)**	27.9% (72)	12.0% (31)	258
Financial performance	**50.0% (127)**	35.8% (91)	14.2% (36)	254
EMR	**43.7% (111)**	41.3% (105)	15.0% (38)	254
Other *	7.8% (4)	37.3% (19)	**54.9% (28)**	51

*** ~ 7 options including chart review by PI dept and medical executive committee**

AQ – 269
SQ – 240

Tracking Guideline Adherence

Ongoing process used to track and facilitate adherence to guidelines?

Response	Percent (n)
I don't know	24.8% (80)
No	31.4% (101)
Yes	43.8% (141)

~ 56%

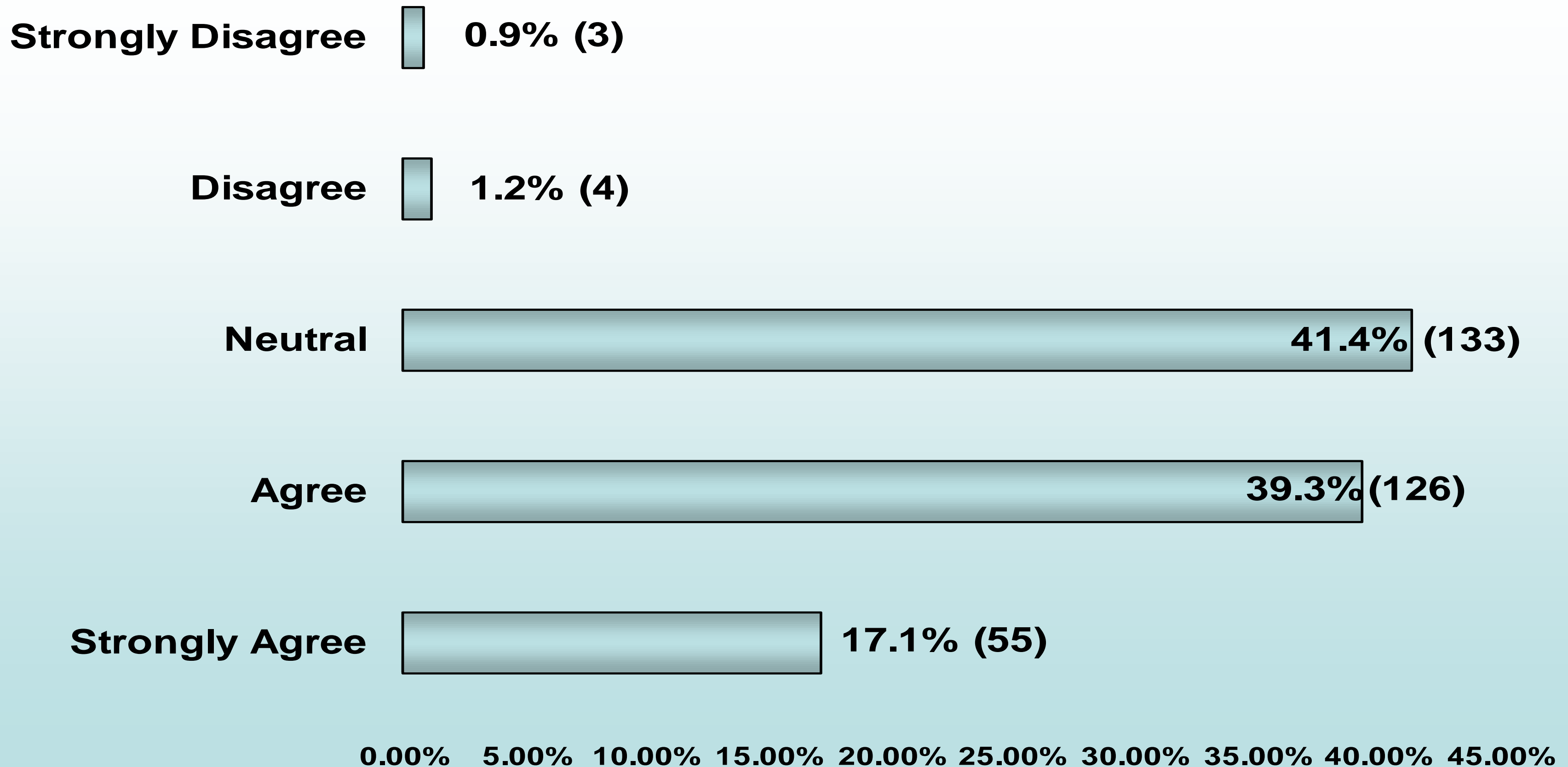
0.00% 10.00% 20.00% 30.00% 40.00% 50.00%

Please describe (n = 69)

AQ - 322 SQ - 187

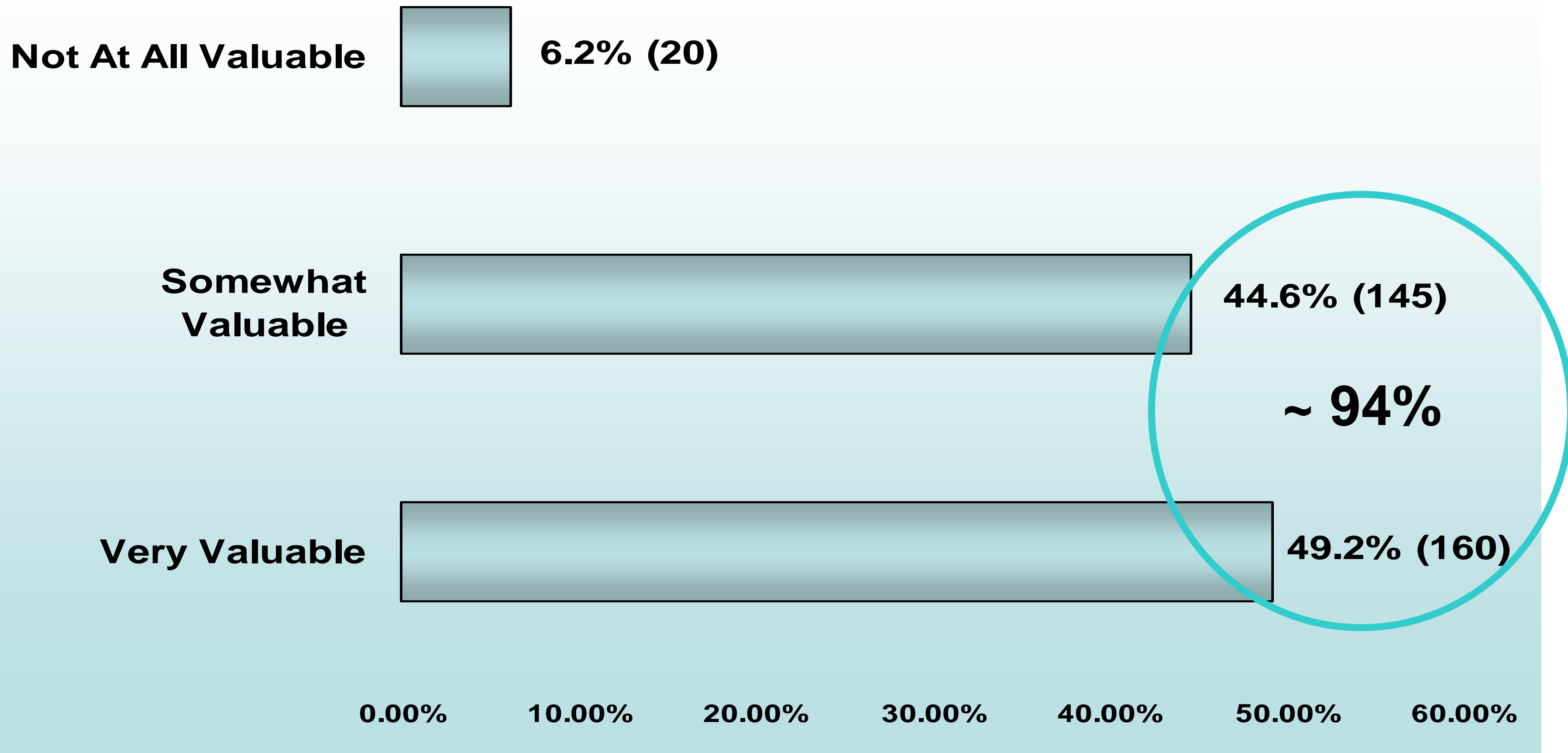
Would Standardized Approaches Help?

My institution adopting GRADE, AGREE and/or GLIA to discuss the strength and implementability of various guidelines would be helpful



AQ - 321 SQ - 188

Are NACB LMPGs of Value?



Please describe (n = 69)

AQ - 325 SQ - 184

Further Suggestions for NACB Leaders

~13% (40 of 310) had additional suggestions or questions for NACB leaders on guideline development, implementation, and future activities

- LMPGs and clinical practice guidelines should be separate, but ‘cross-reference’ one another; should give guidance on lab utilization
- More focused topics, yet still evidence-based
- NACB should work on demonstrating implementing a LMPG that improved quality and resource use - would demonstrate utility of LMPG
- Should [continue to] publish in both clinical and laboratory journals
- More guidelines and more frequent updates are needed
- Please continue …. NACB guidelines are …. Most helpful
- Condense best practice algorithms on easy to distribute ‘cards’
- Help increase physician awareness …. Direct connection with AMA

AQ - 310 SQ - 199

Further Suggestions for NACB Leaders

~ Additional suggestions or questions for NACB leaders continued ….

• Be part of work aimed towards developing 8 – 12 national lab performance indicators proactively

• Institutions described in this survey are large entities with likely more resources … need to look at implementing guidelines in a 'field setting'

• More implementation/teaching through clinical medicine societies

• Collaborate with appropriate clinical organizations

• Prepare instructional materials that translate the guidelines for use

• Get formal endorsement from professional clinical societies

• Guidelines are clearly valuable … it is better if all labs follow NACB guidelines. May be helpful to organize workshops and other learning sessions for laboratory personnel

AQ - 310 SQ - 199

NACB

Considerations and Conclusions

- LMPGs and practice guidelines are being widely used in many sites
  - Impact clinical practice (~85%)
  - Drive practice changes (~73%)
  - Impact the use of the laboratory (~80%)
- More QA and utilization auditing supporting PG use is needed:
  - There aren't QA audits or any known of by respondents (35%)
  - There isn't an ongoing process or isn't any known of (56%)
- Use of standardized approaches (e.g., GLIA) would help (56 %)
- Challenges in implementing LMPGs and practice guidelines may be very similar from one to another site
- Solutions to overcome challenges appear to be significantly lab director and clinician dependent
- More guidance on how to implement and track impact is needed

Next Steps - NACB Leaders Should:

- Continue to evolve the process for creating, developing and publishing LMPGs … recent efforts have included
  - SOP revision
  - formalizing LMPG cmte and NACB BOD COI disclosure
  - Establishing framework for working closely with EBM
  - Identifying process for working with other groups on evidence based systematic review (e.g., AHRQ)
- Further analyze and review survey results
- Identify if any aspects of ESAC's LMPG SOP need revision
- Assuming distribution is desirable, select appropriate vehicle
- Determine if new opportunities exist for improving the practice of laboratory medicine and its application to patient care
- Act on these opportunities

Acknowledgements

Betsy Garman (AACC and NACB)

Penny Jones (AACC and NACB)

Rich Flaherty (AACC)

<u>Symposium Work Group</u>
Catherine Hammett-Stabler
Rex Astles
Mary Nix
Chris Johnson (CDC Statistician)
Sue Evans

<u>LMPG Chairs</u>
John Sherwin
Rob Christenson
Alan Wu

<u>NACB BOD</u>
John Peterson
Ken Blick
Stan Lo
Lori Sokoll
Roger Bertholf
Marty Fleisher
Sal Sena
Bill Winter

<u>Additional Test Drivers</u> Mary
Burritt Frank Sedor Jim
Ritchie Jim Nichols Tom
Annesley Shirley Welch