AAFCO LABORATORY METHODS & SERVICES COMMITTEE – 2021 LAB CAPABILITY SURVEY RESULTS

AAFCO 2021 ANNUAL MEETING

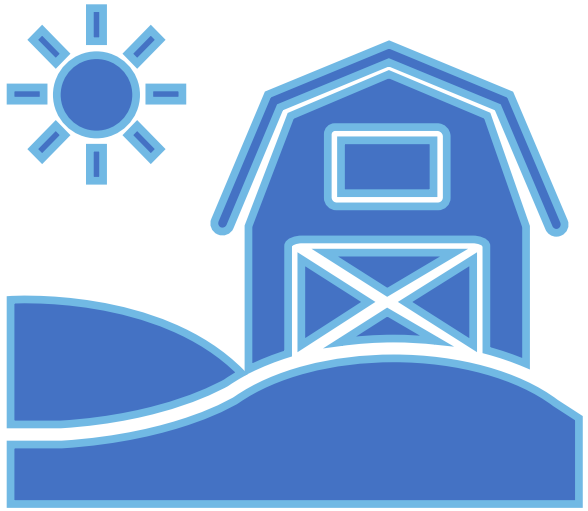
AUGUST 4 – LMSC CO-CHAIRS

AAFCO 2021 LABORATORY CAPABILITY SURVEY - PURPOSE

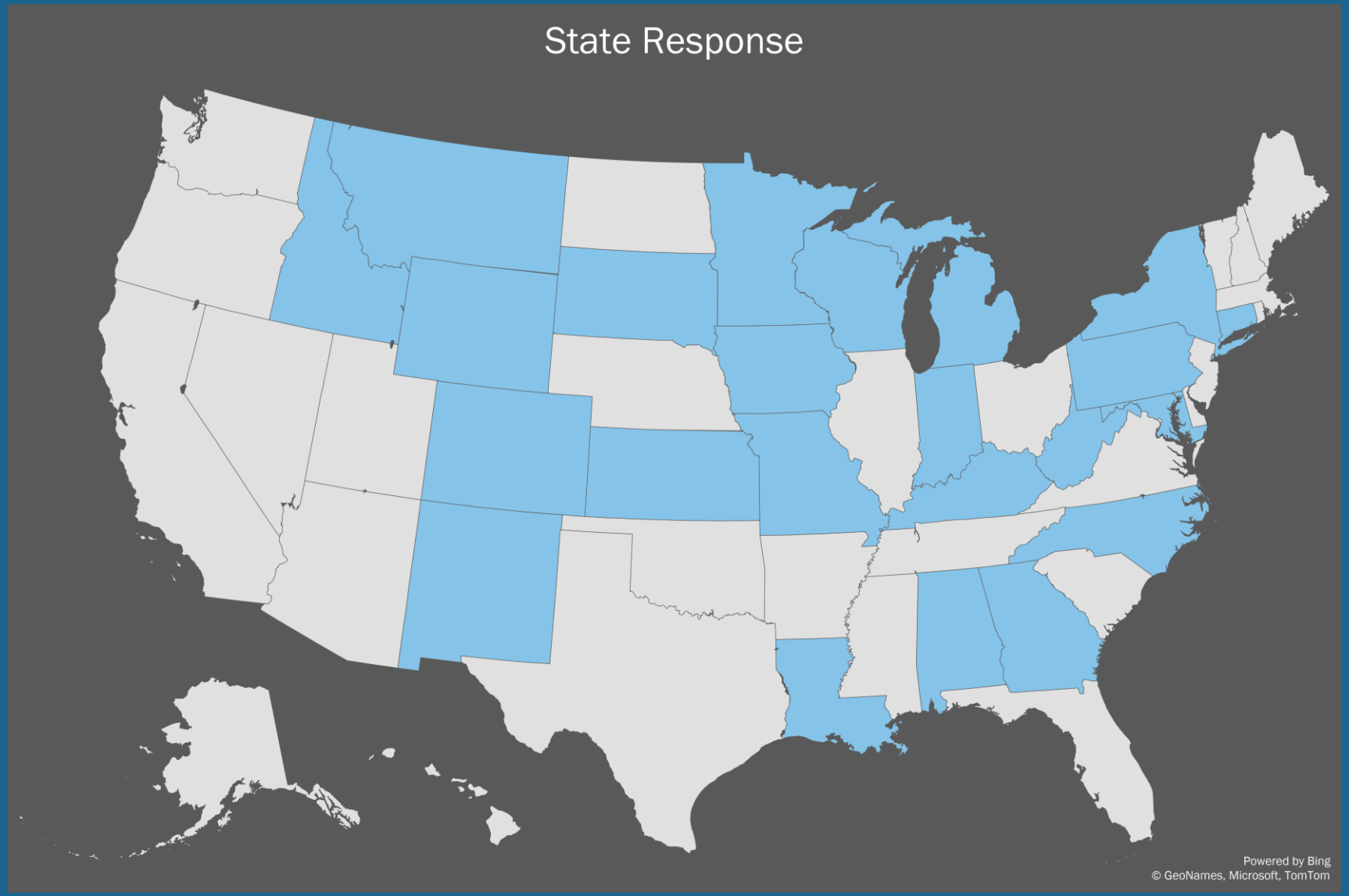
- To assess current laboratory analytical capabilities in response to the method needs survey sent to State Agriculture Regulatory Programs in 2020
- Gather data on current capabilities
- Gather data on method needs
- Gather data on training needs
- Gather data on equipment/technology needs
- Implement a strategic plan for addressing the hazards/contaminants of concern identifies by the State Agriculture Regulatory

GENERAL STATISTICS - RESPONSES

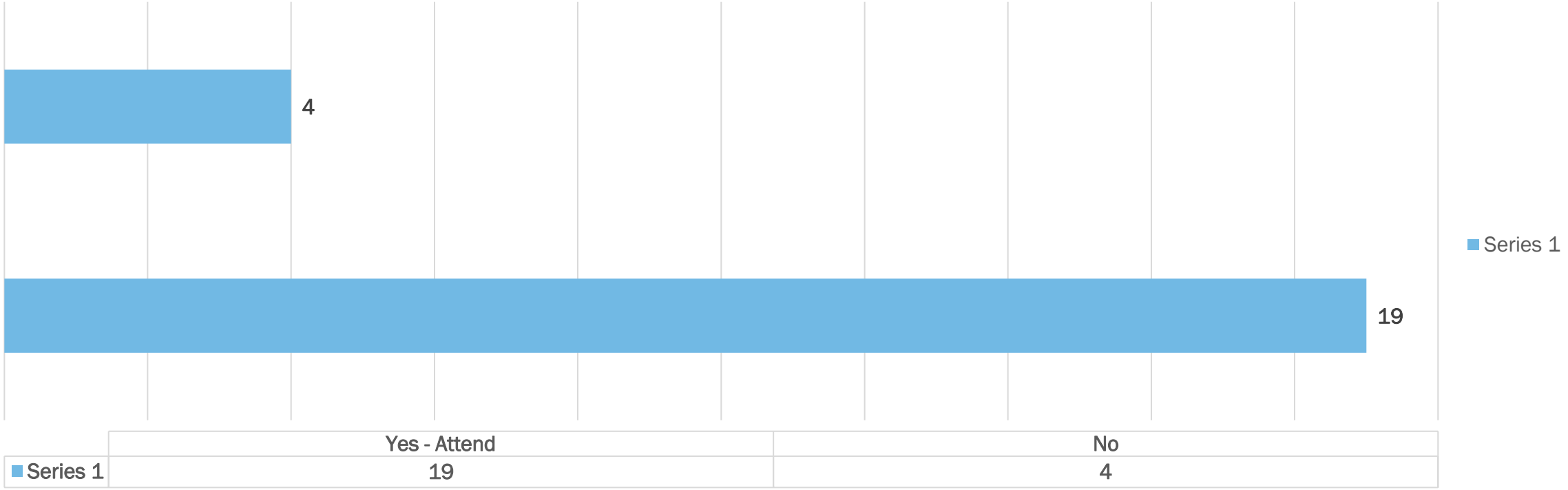
- All state agriculture laboratories were sent the survey – only State labs received this survey - no private, federal or local labs
- 23 State Agriculture laboratories responded to the survey – Thank you! ☺



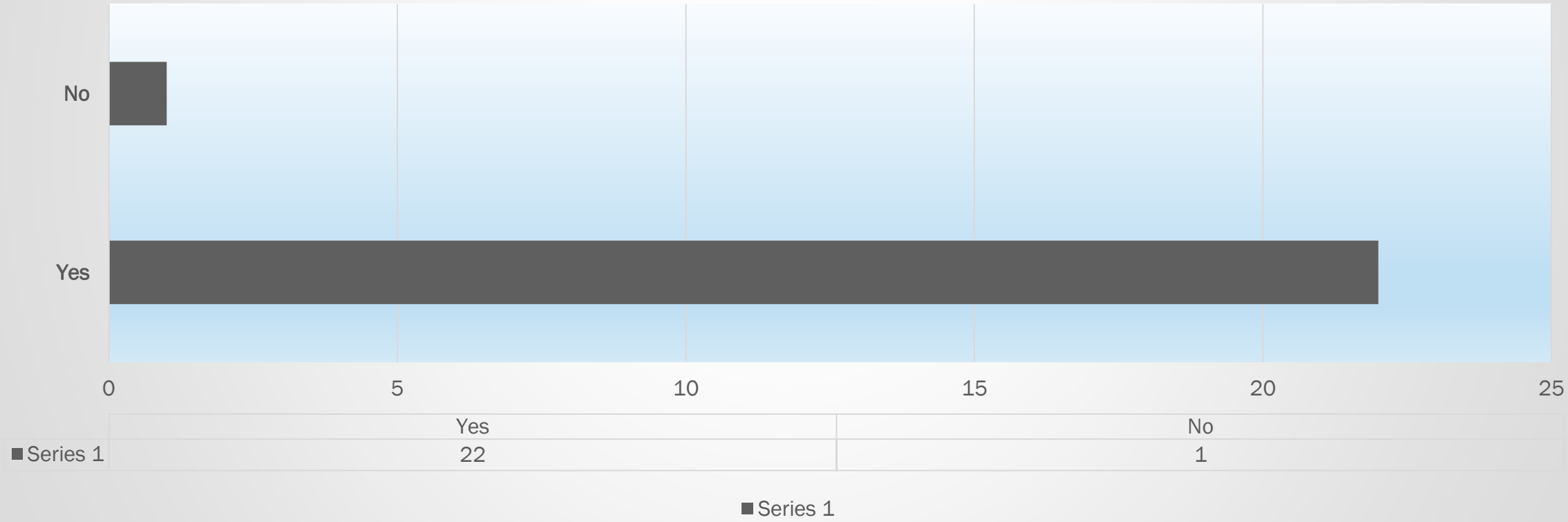
State Response



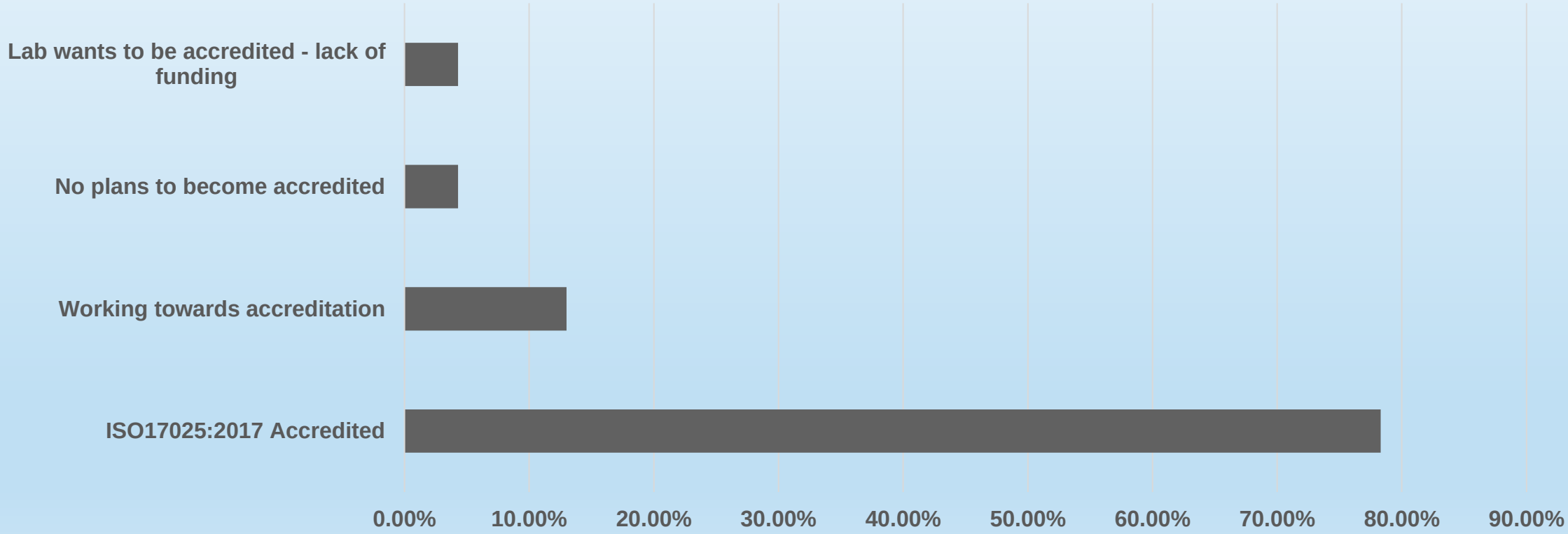
DOES YOUR STATE AG LAB ATTEND AND/OR PARTICIPATION IN THE AAFCO LMSC?



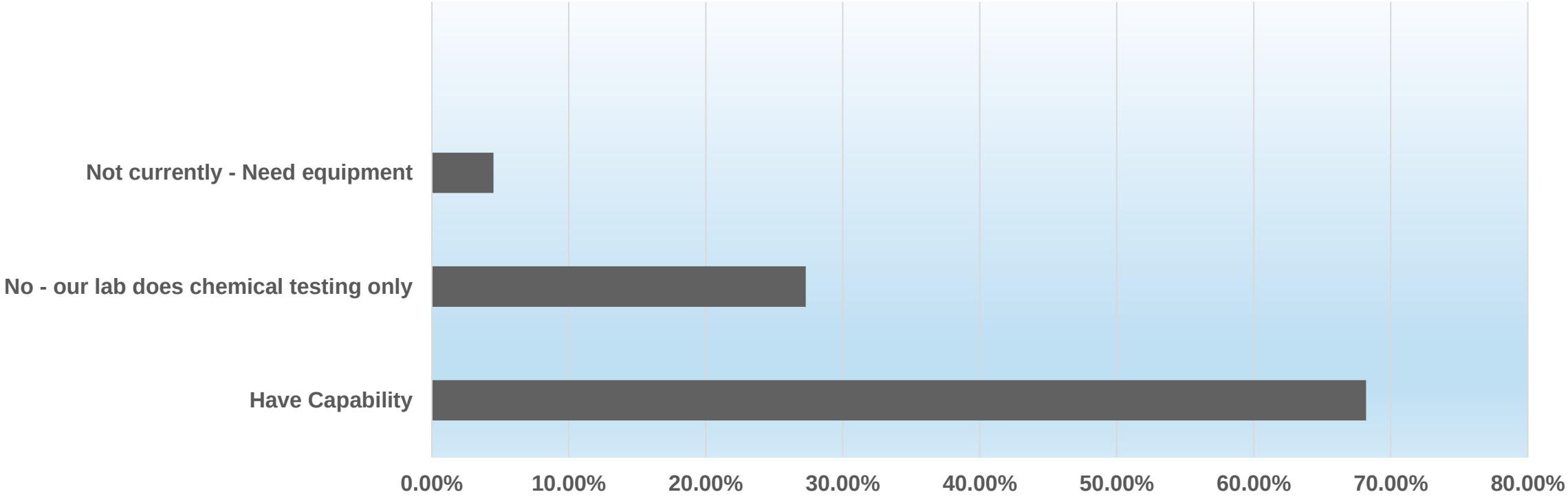
DOES YOU LABORATORY PARTICIPATE IN THE AAFCO PT PROGRAM?



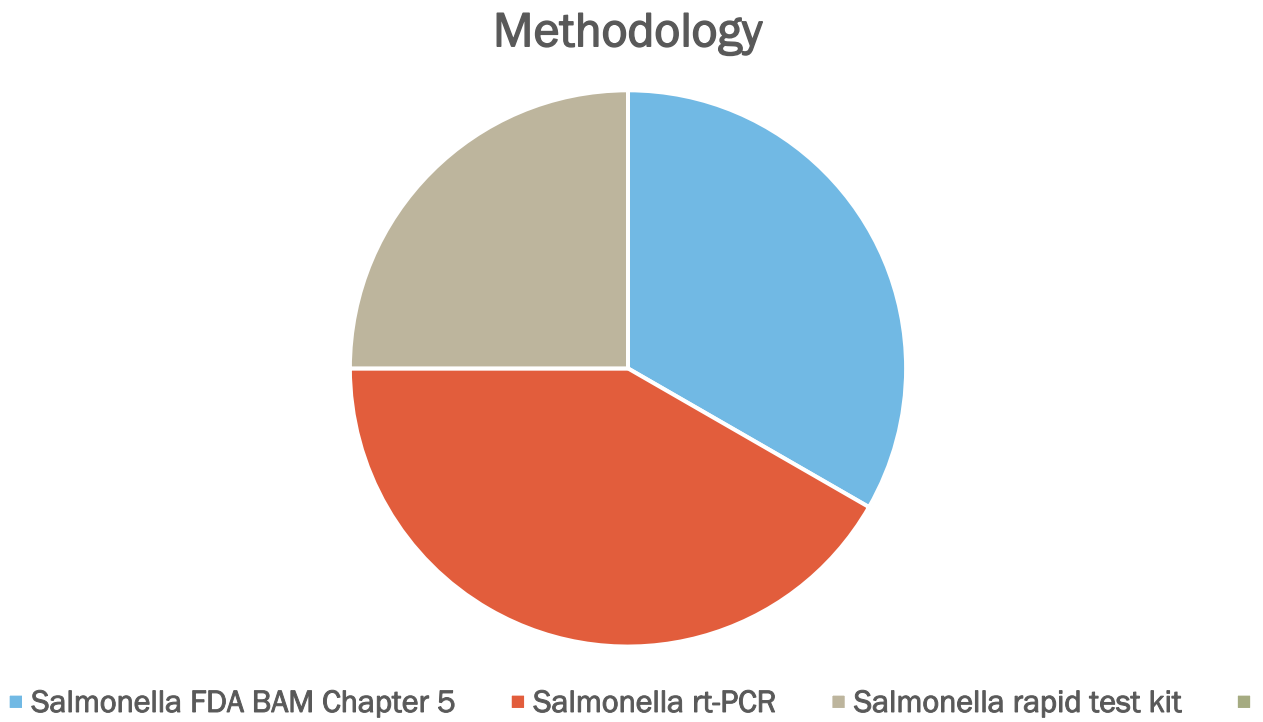
ACCREDITATION STATUS OF RESPONDING LABORATORIES



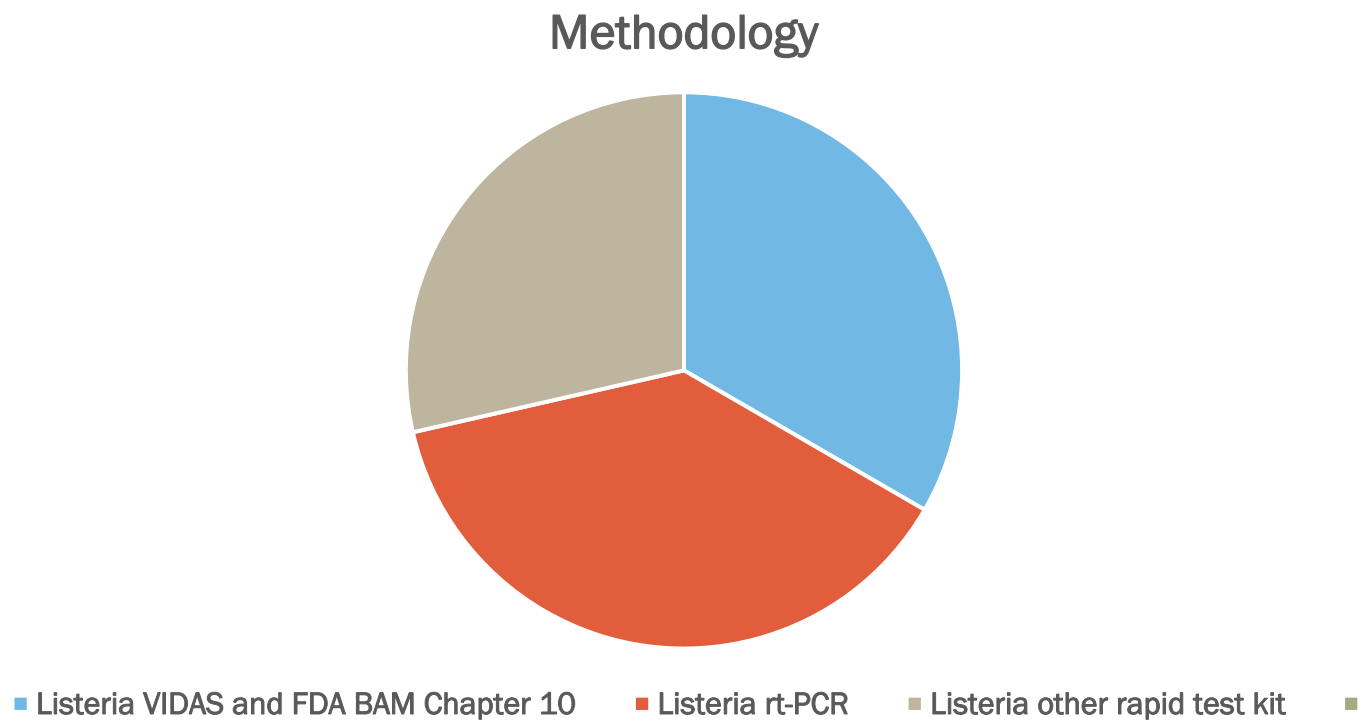
MICROBIOLOGY TESTING CAPABILITY SUMMARY



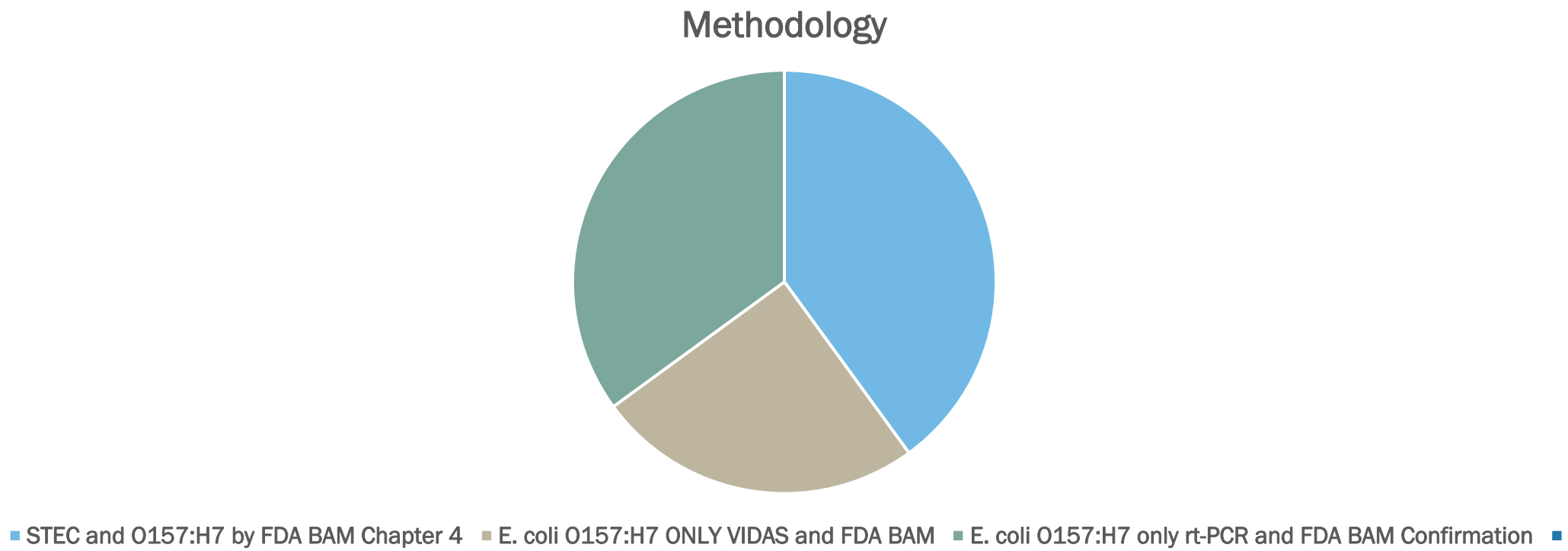
MICROBIOLOGICAL METHOD CAPABILITY – DETECTION AND ISOLATION OF SALMONELLA SPP.



MICROBIOLOGICAL METHOD CAPABILITY – DETECTION AND ISOLATION OF LISTERIA



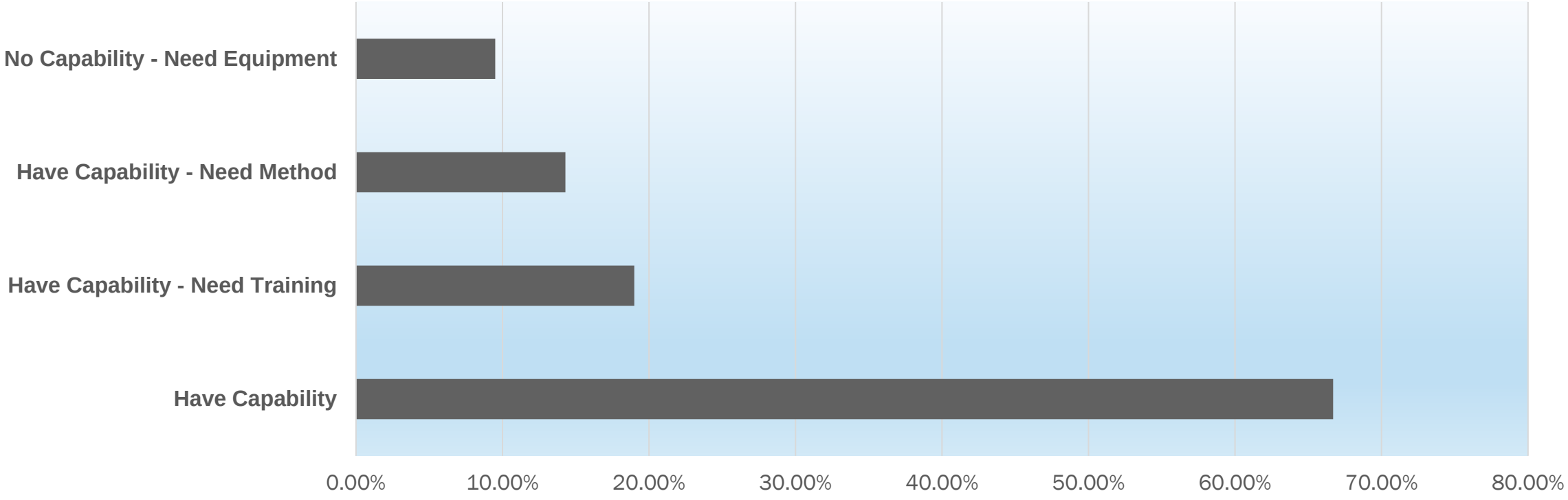
MICROBIOLOGICAL METHOD CAPABILITY – DETECTION AND ISOLATION OF SHIGA TOXIN-PRODUCING E. COLI (O157:H7 AND NON-O157 STEC)



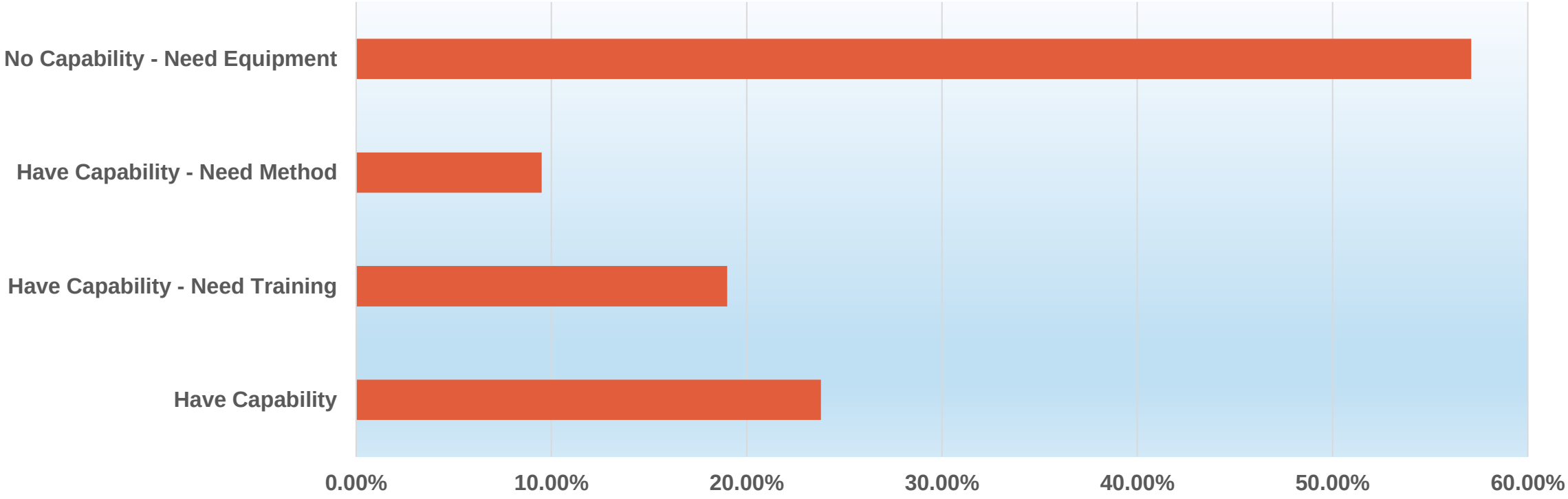
MOLD IDENTIFICATION

NONE OF THE SURVEYED LABORATORIES REPORTED CAPABILITY FOR THIS ANALYSIS

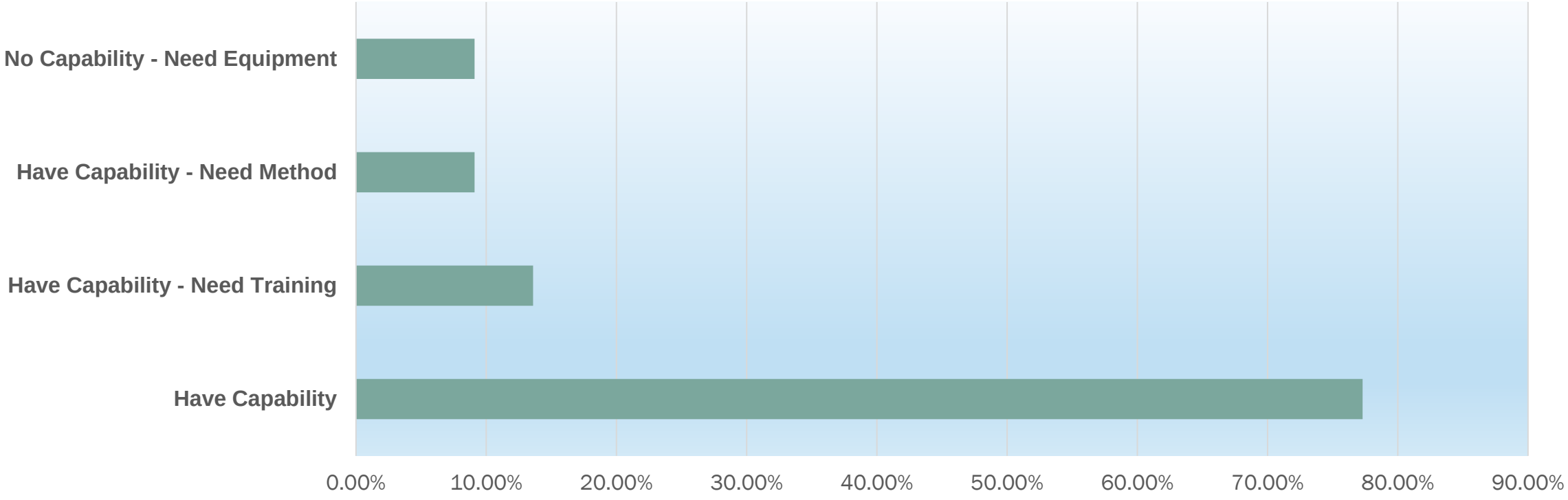
TOXIC METALS CAPABILITY - ARSENIC



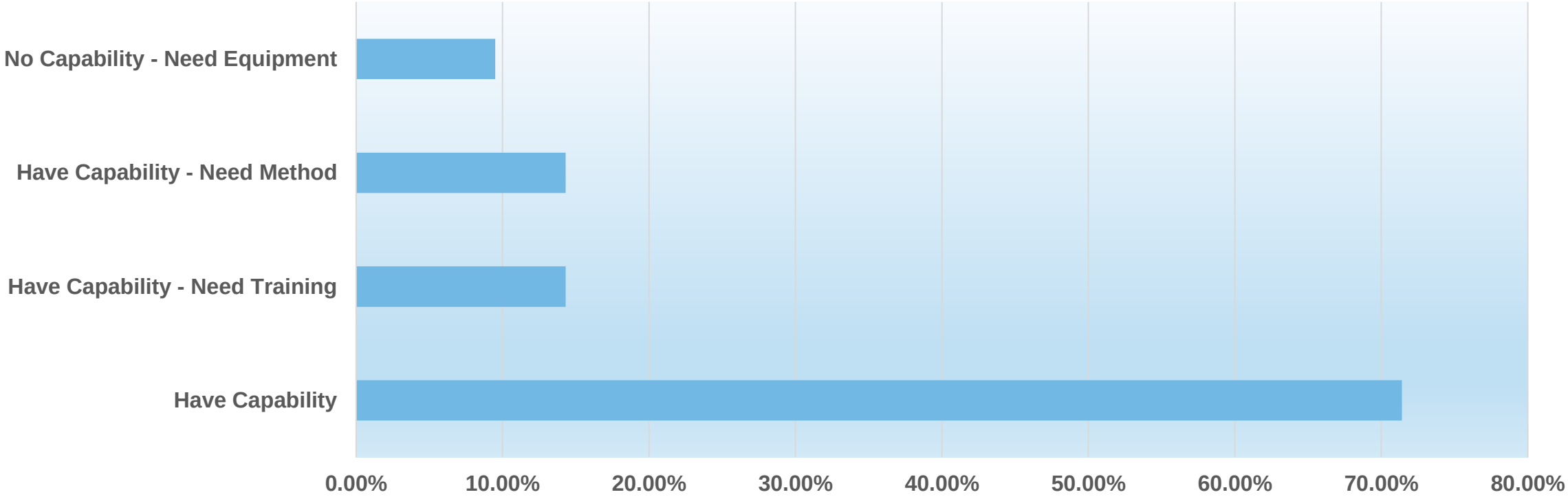
TOXIC METALS CAPABILITY – ARSENIC SPECIATION



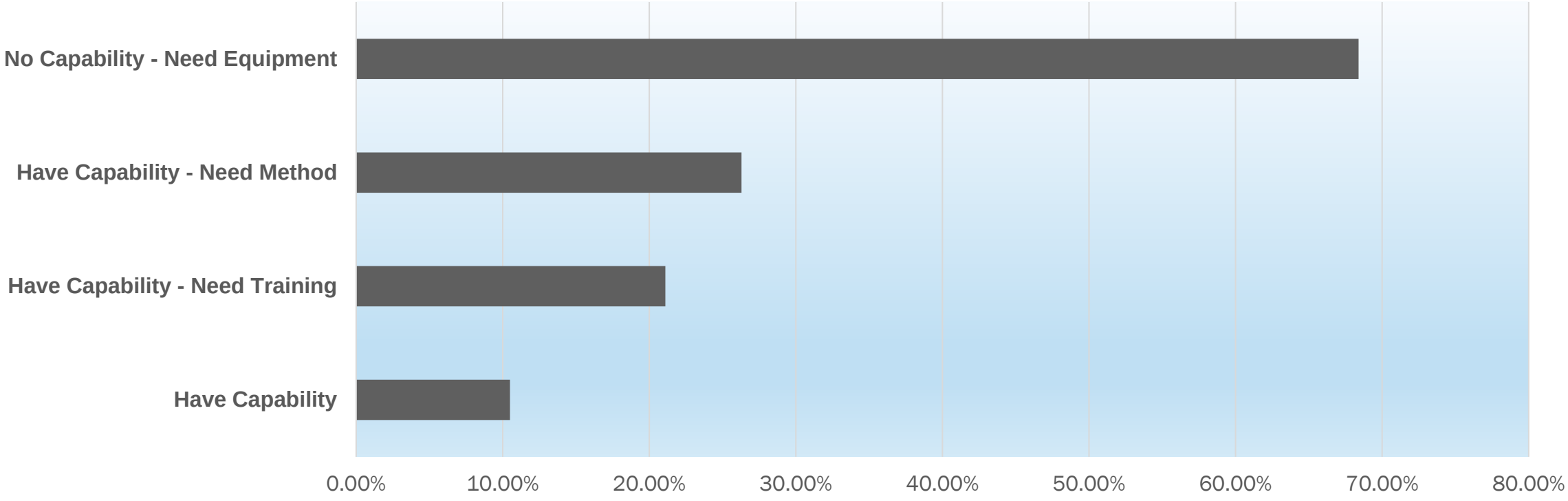
TOXIC METALS CAPABILITY – CADMIUM



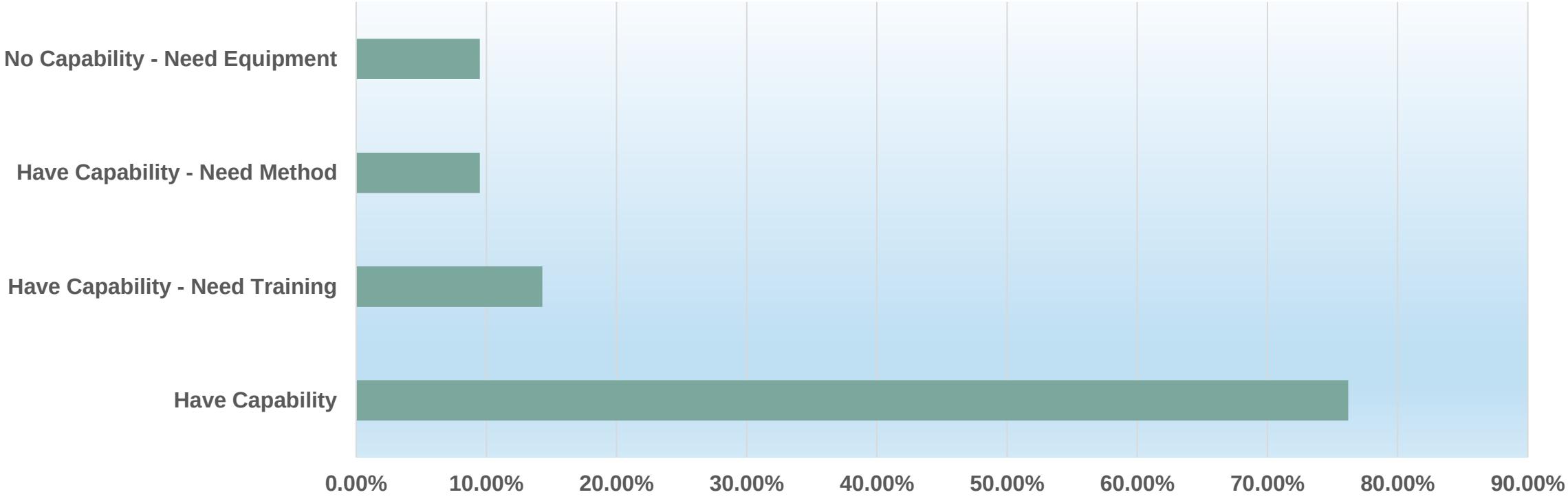
TOXIC METALS CAPABILITY – CHROMIUM



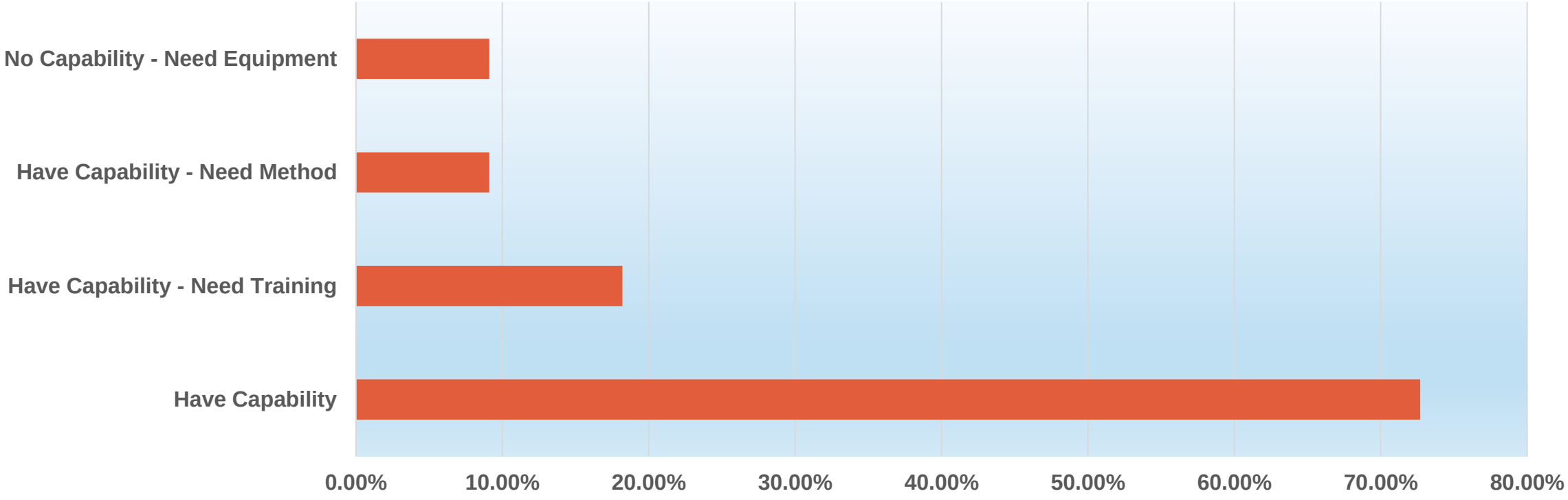
TOXIC METALS CAPABILITY – CHROMIUM SPECIATION



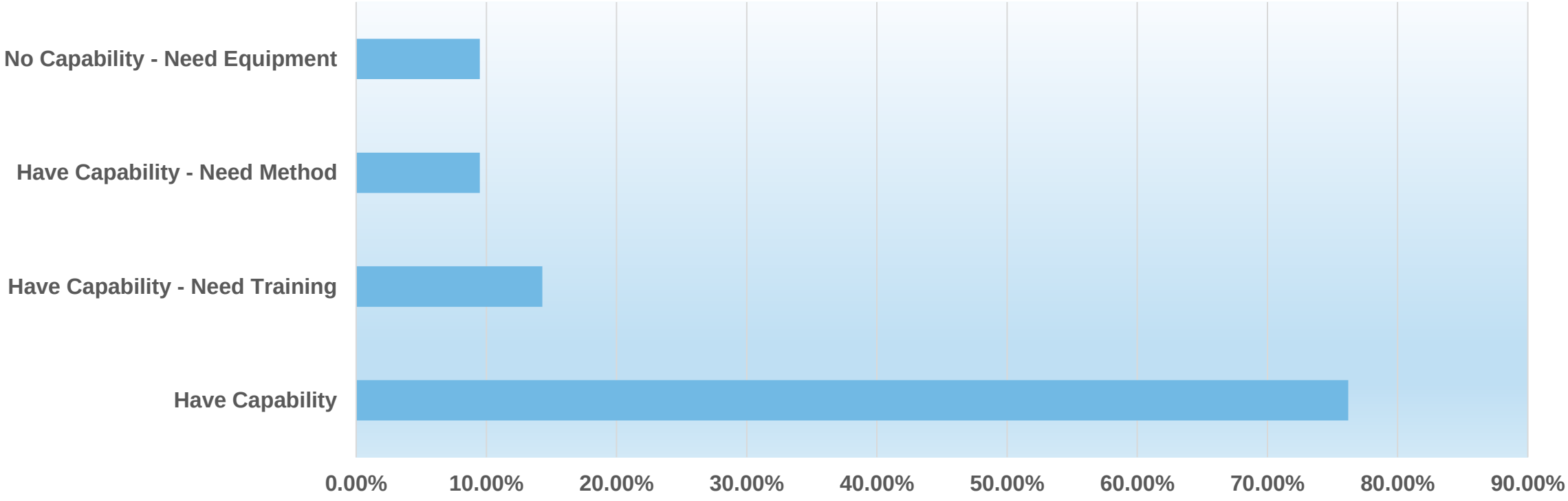
TOXIC METALS CAPABILITY – COBALT



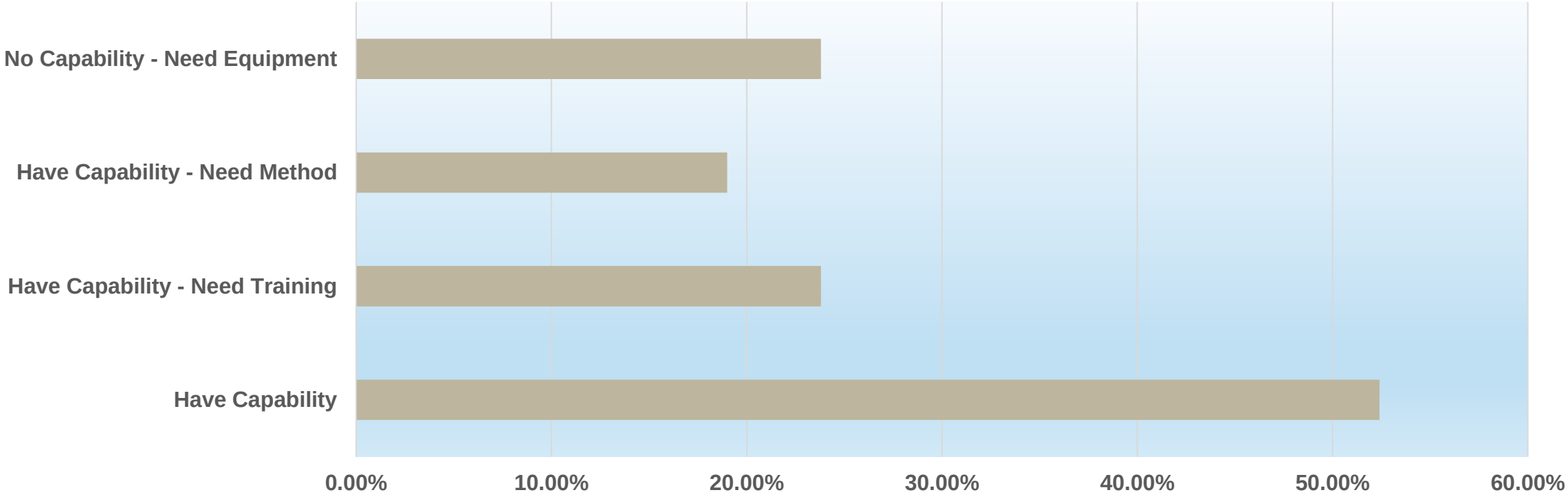
TOXIC METALS CAPABILITY – LEAD



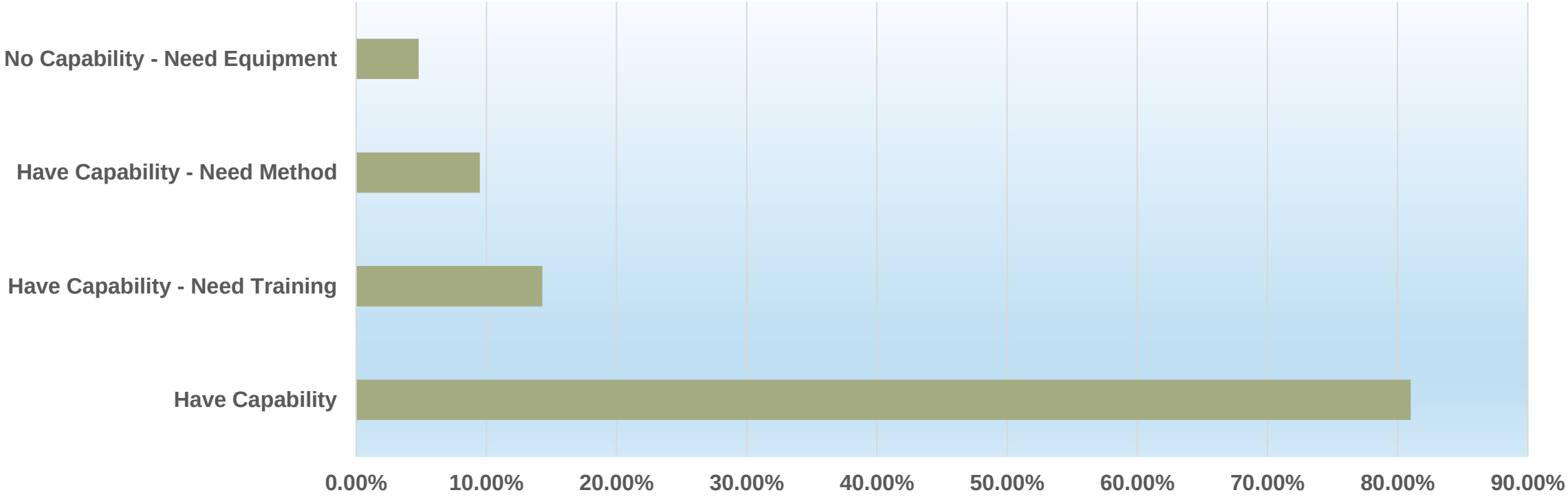
TOXIC METALS CAPABILITY – NICKEL



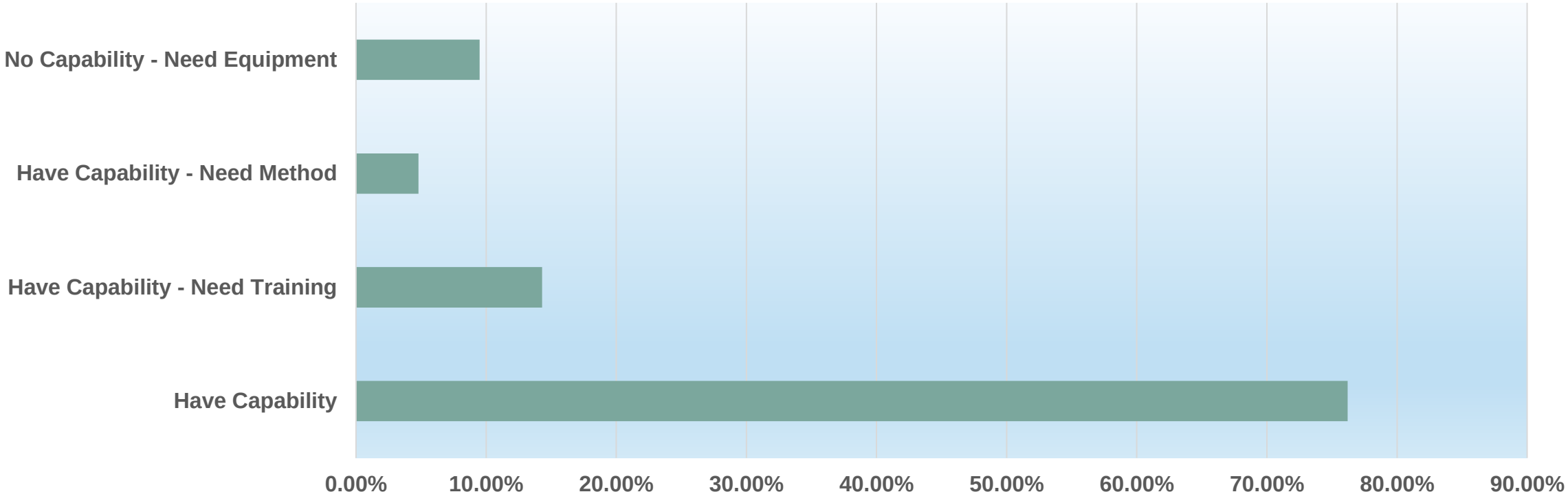
TOXIC METALS CAPABILITY – MERCURY



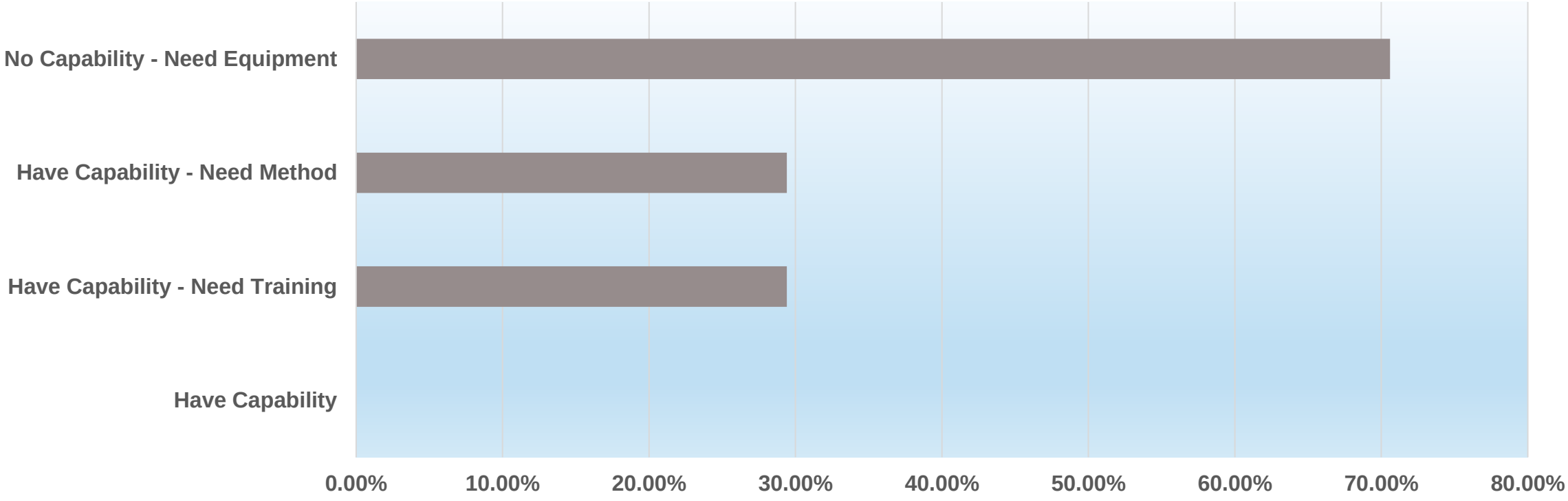
TOXIC METALS CAPABILITY – MOLYBDENUM



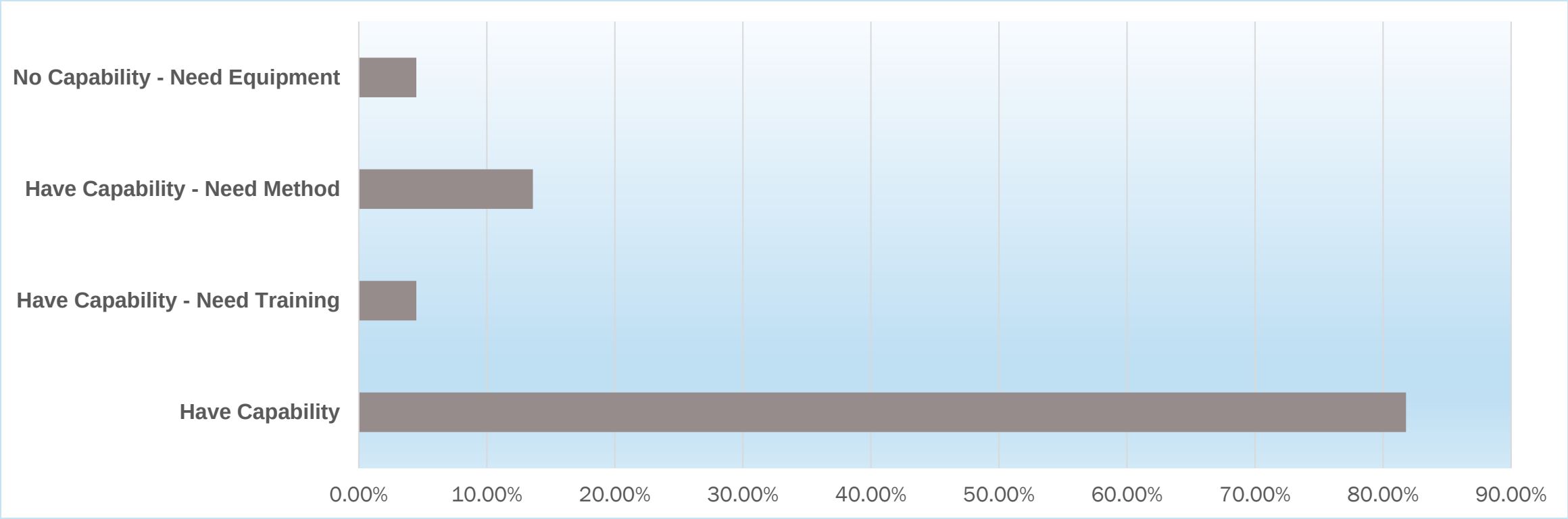
TOXIC METALS CAPABILITY – SELENIUM



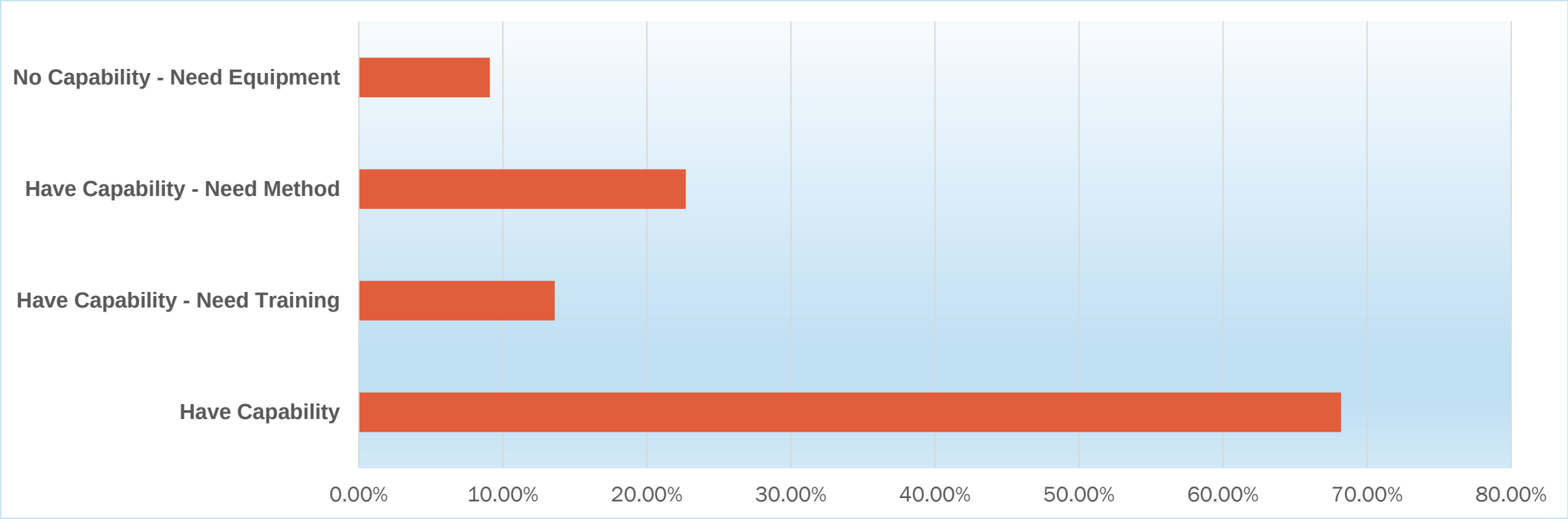
TOXIC METALS CAPABILITY – SELENIUM SPECIATION



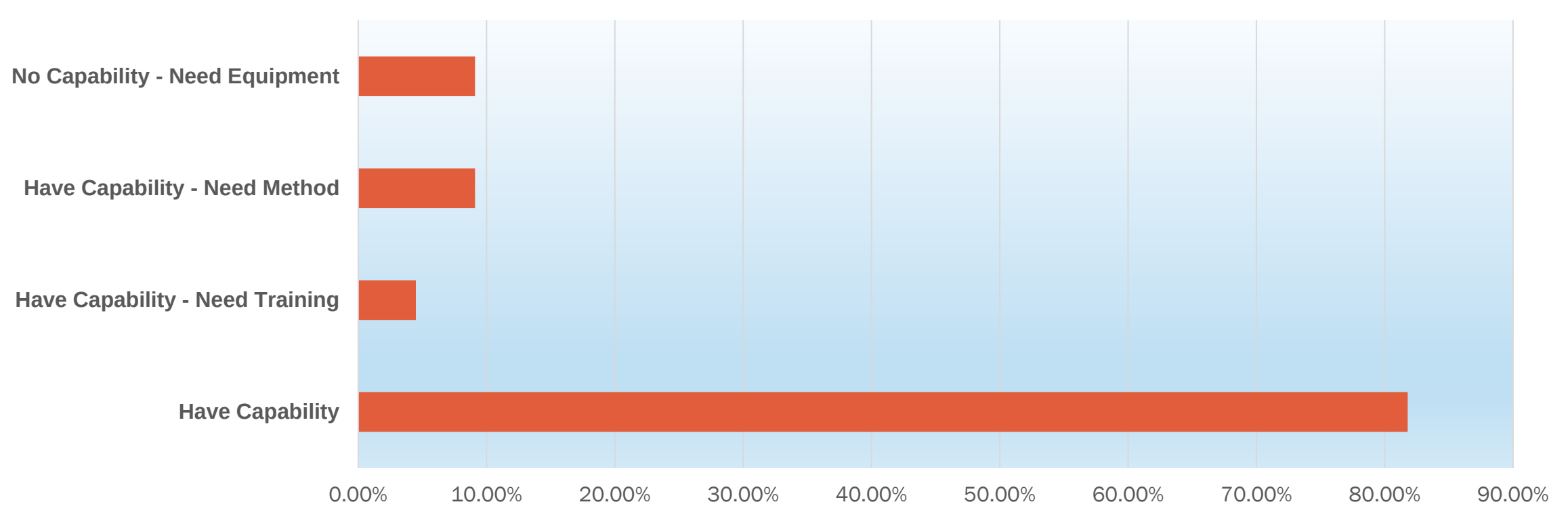
MYCOTOXIN CAPABILITY – TOTAL AFLATOXINS (B1, B2, G1 AND G2)



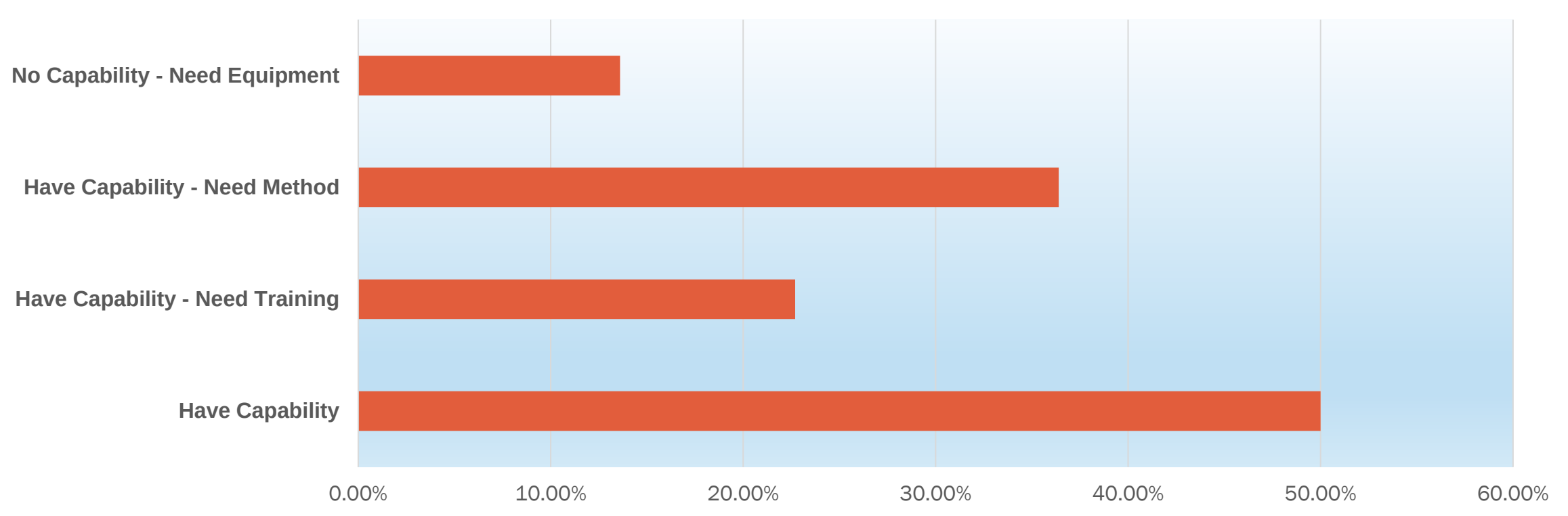
MYCOTOXIN CAPABILITY – FUMONISIN (B1, B2)



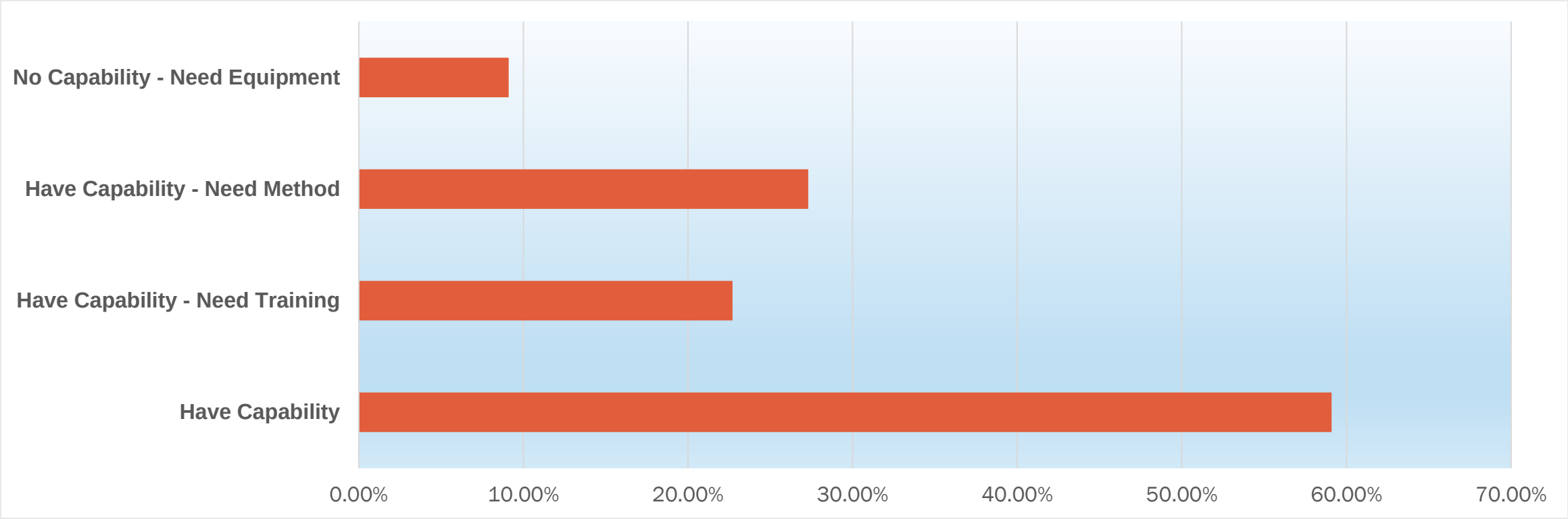
MYCOTOXIN CAPABILITY – DEOXYNIVALENOL (DON)



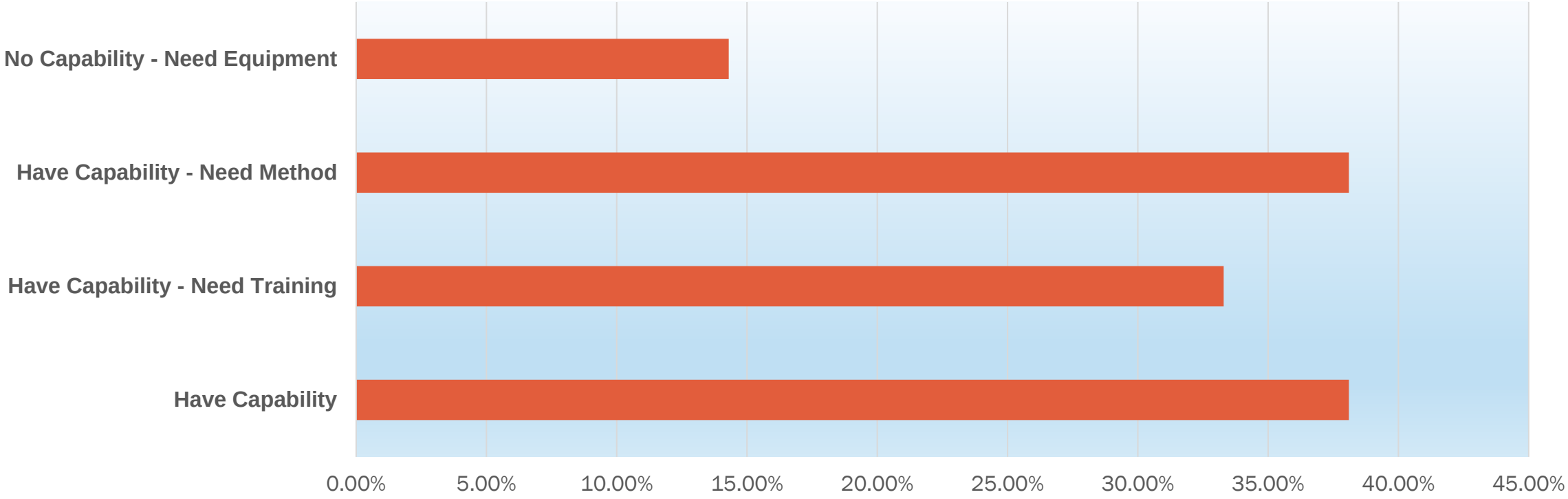
MYCOTOXIN CAPABILITY – OCHRATOXIN



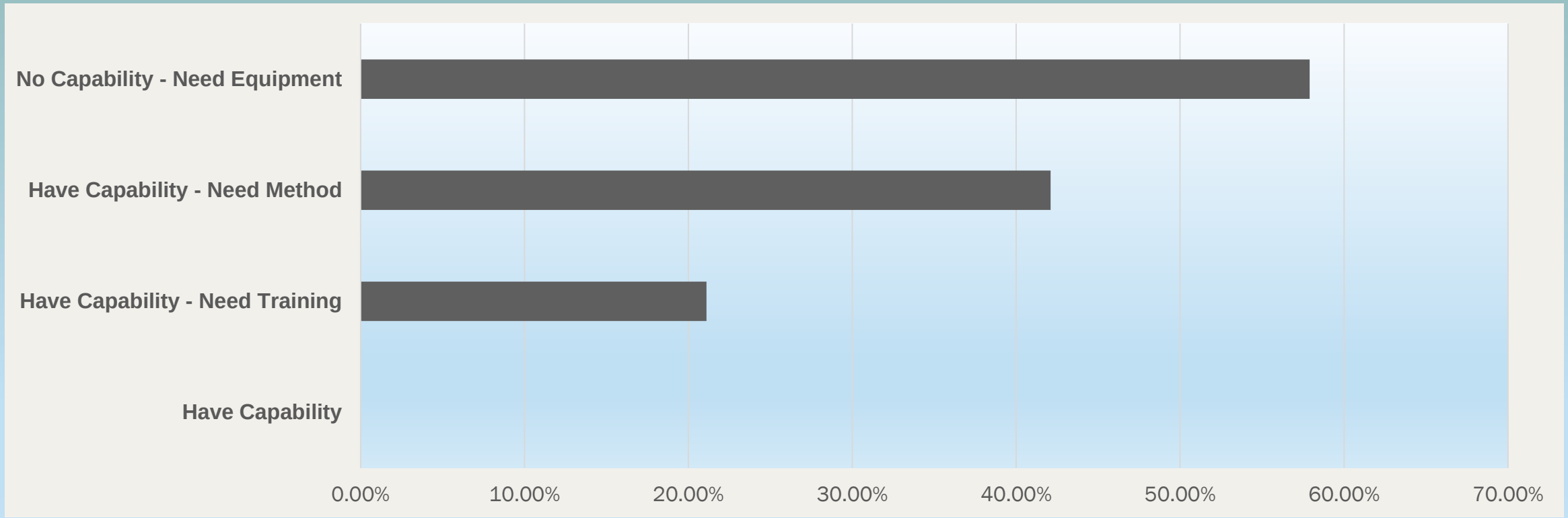
MYCOTOXIN CAPABILITY – ZEARALENONE



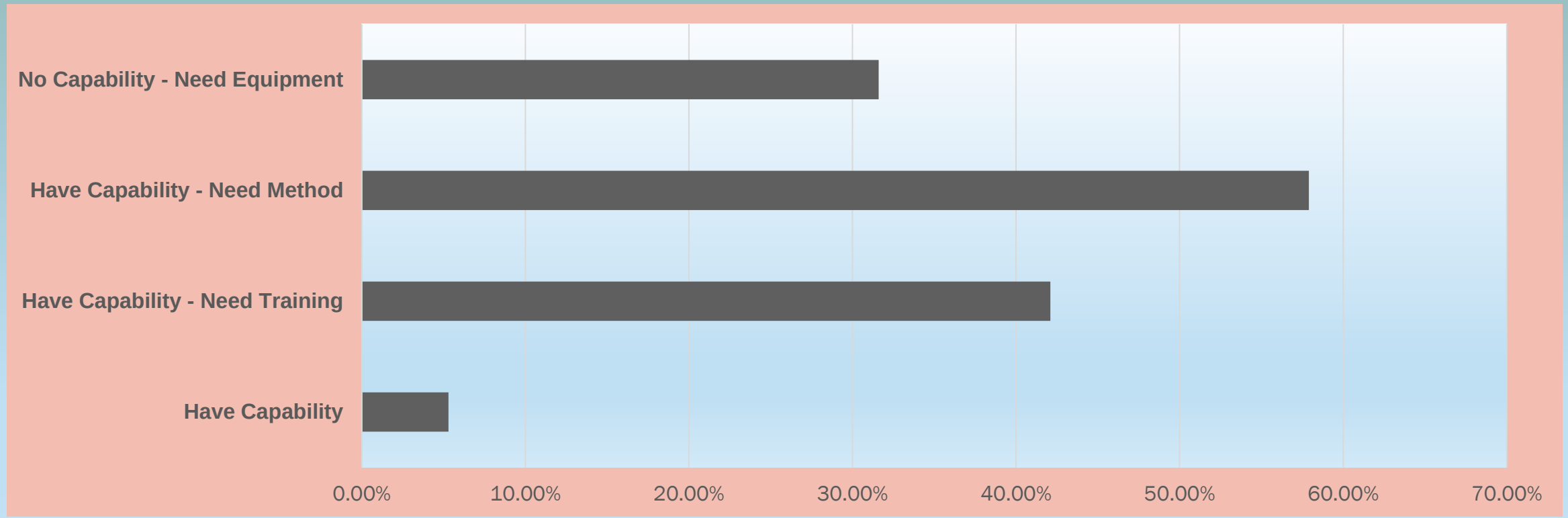
MYCOTOXIN CAPABILITY – T2 AND HT2



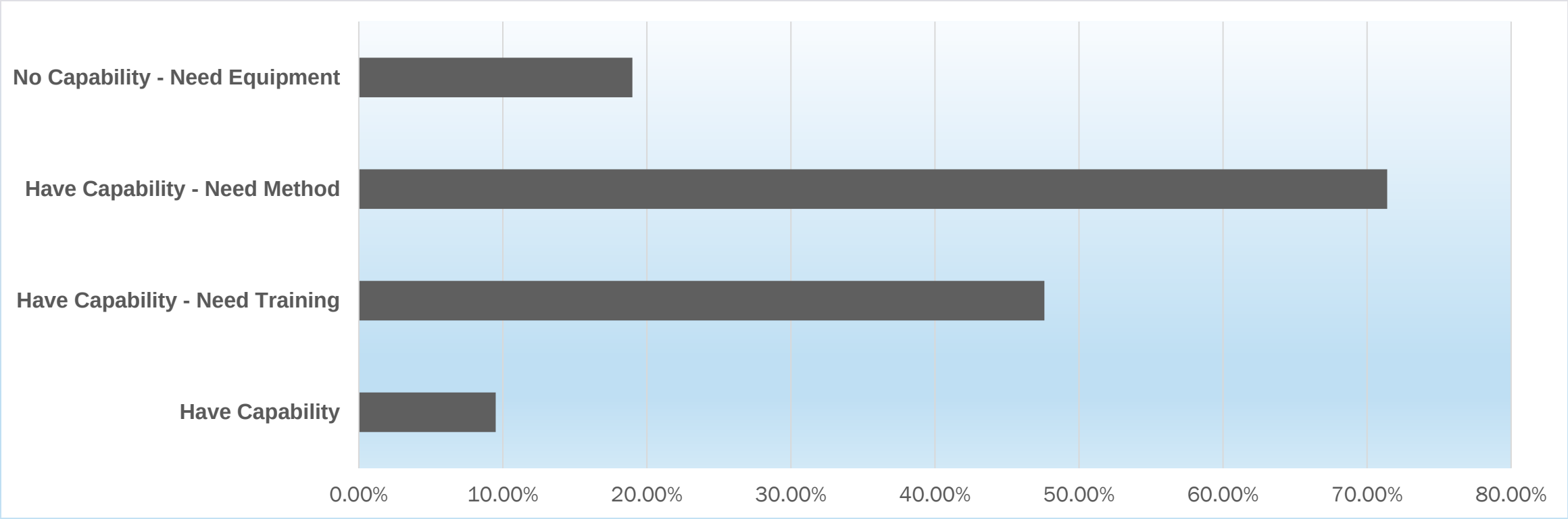
DIOXIN


No Capability - Need Equipment
Have Capability - Need Method
Have Capability - Need Training
Have Capability
0.00%
10.00%
20.00%
30.00%
40.00%
50.00%
60.00%
70.00%

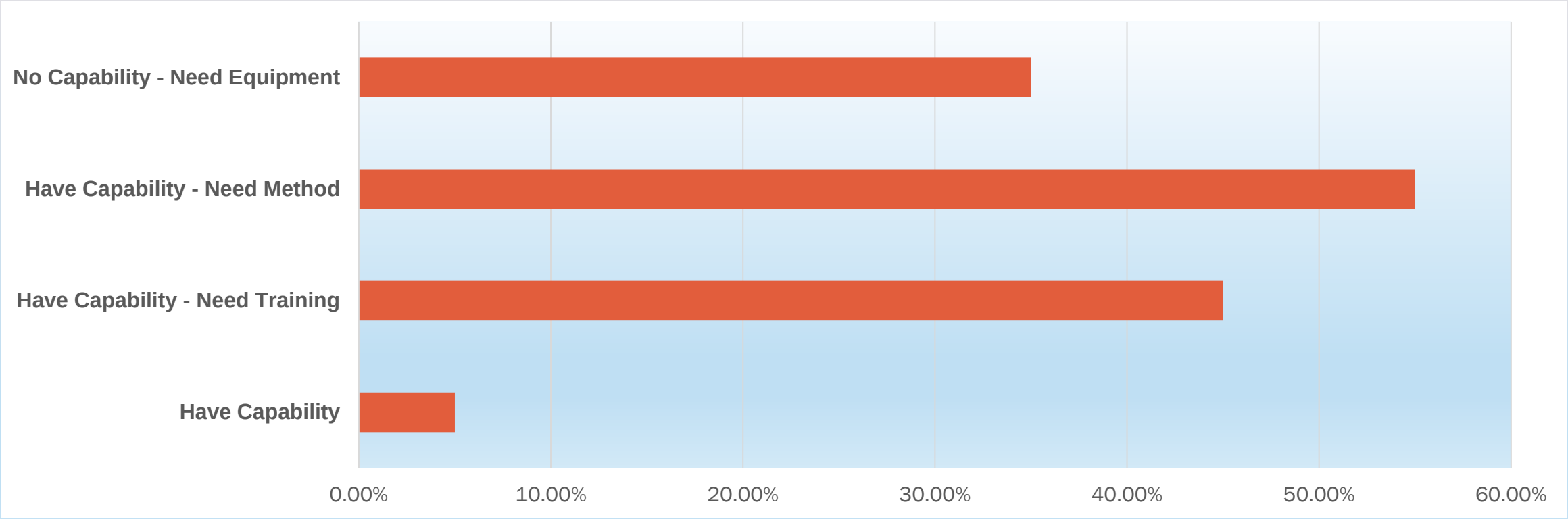
PENTOBARBITAL



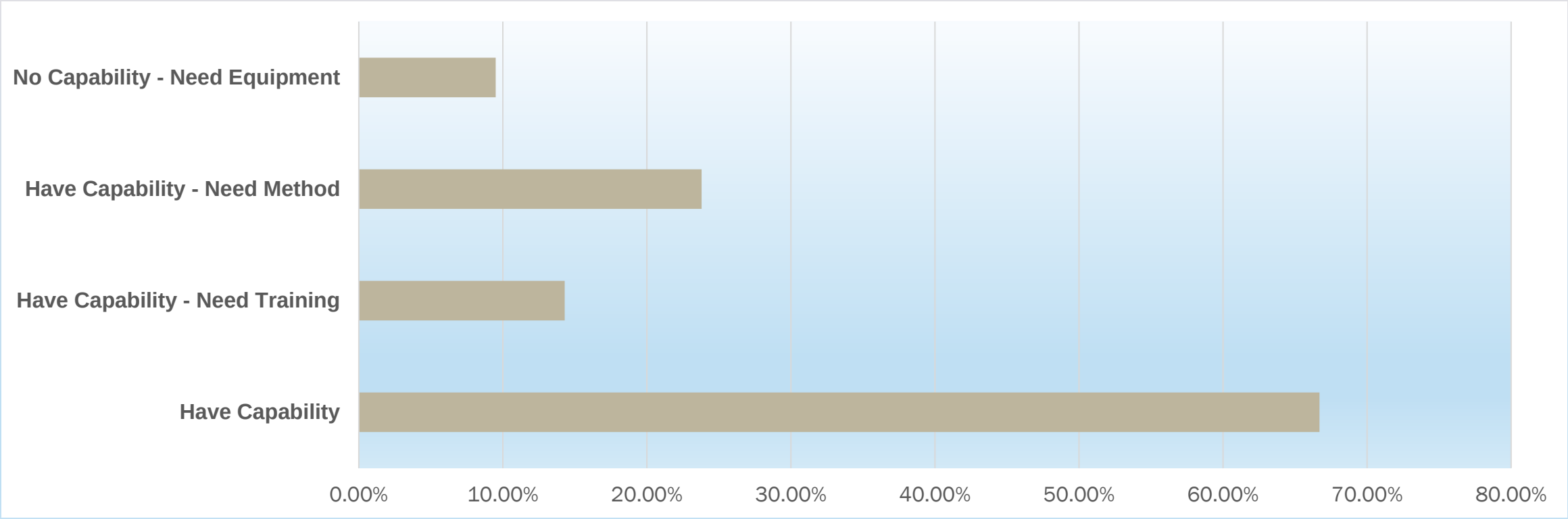
VITAMINS AND VET DRUGS – VITAMIN D BY HPLC



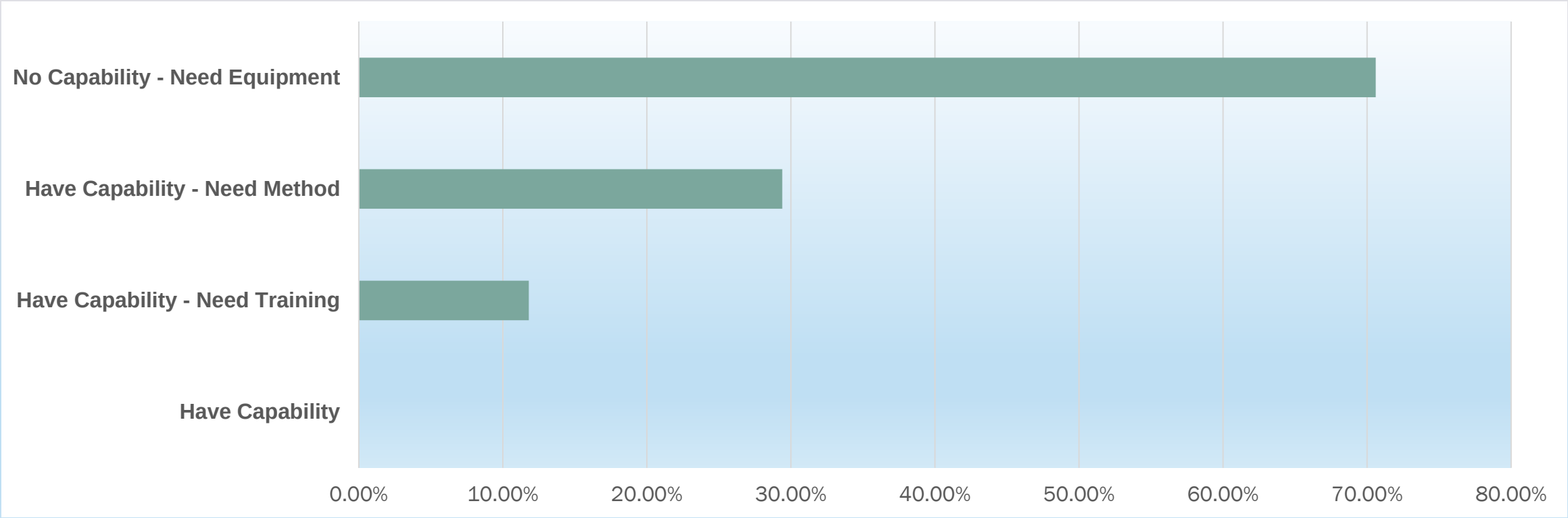
VITAMINS AND VET DRUGS – VITAMIN D BY LC/MS



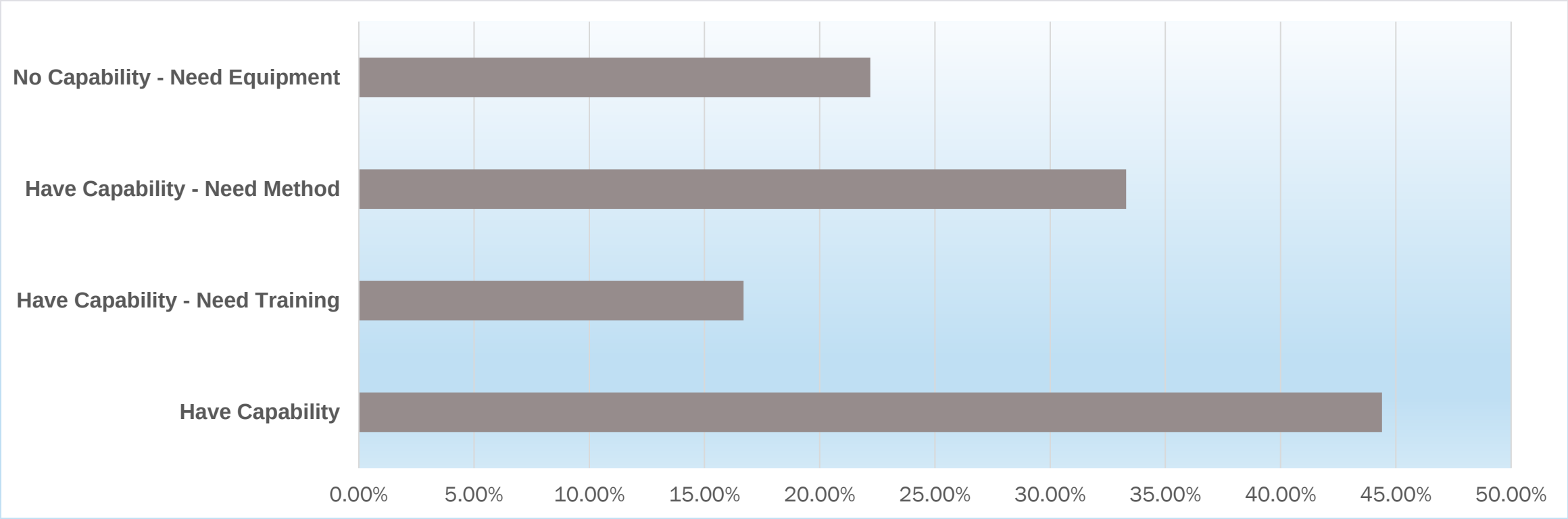
VITAMINS AND VET DRUGS – LASALOCID BY HPLC



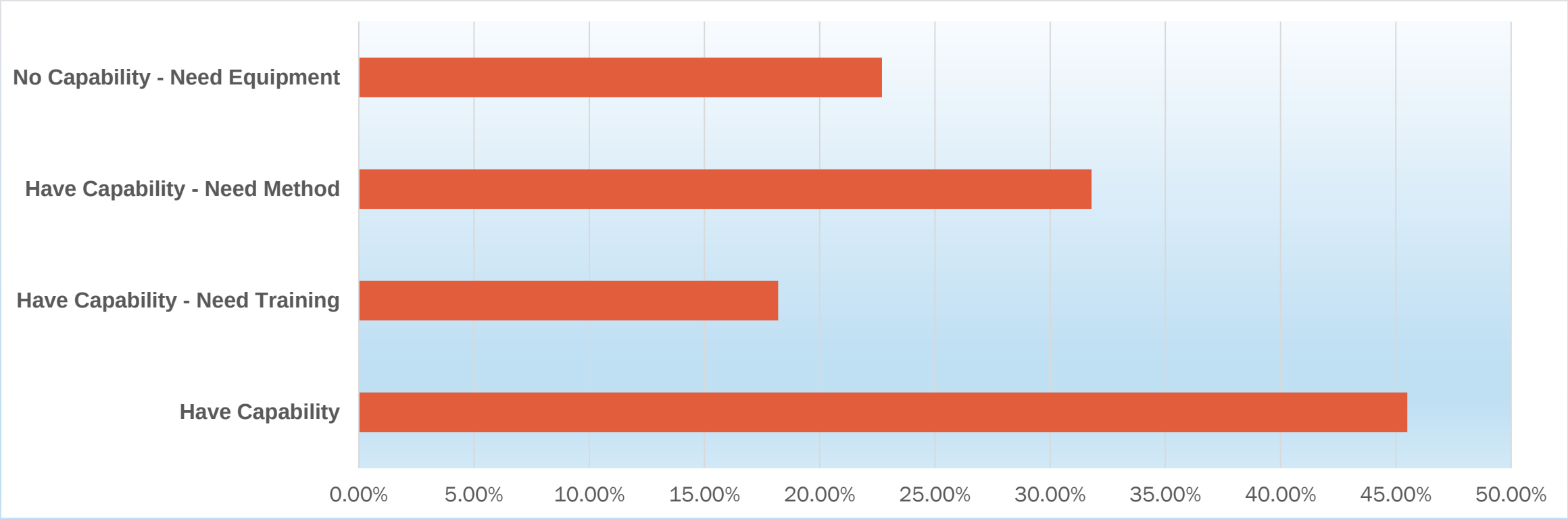
VITAMINS AND VET DRUGS – LASALOCID BY MICROBIOLOGICAL PLATE METHOD



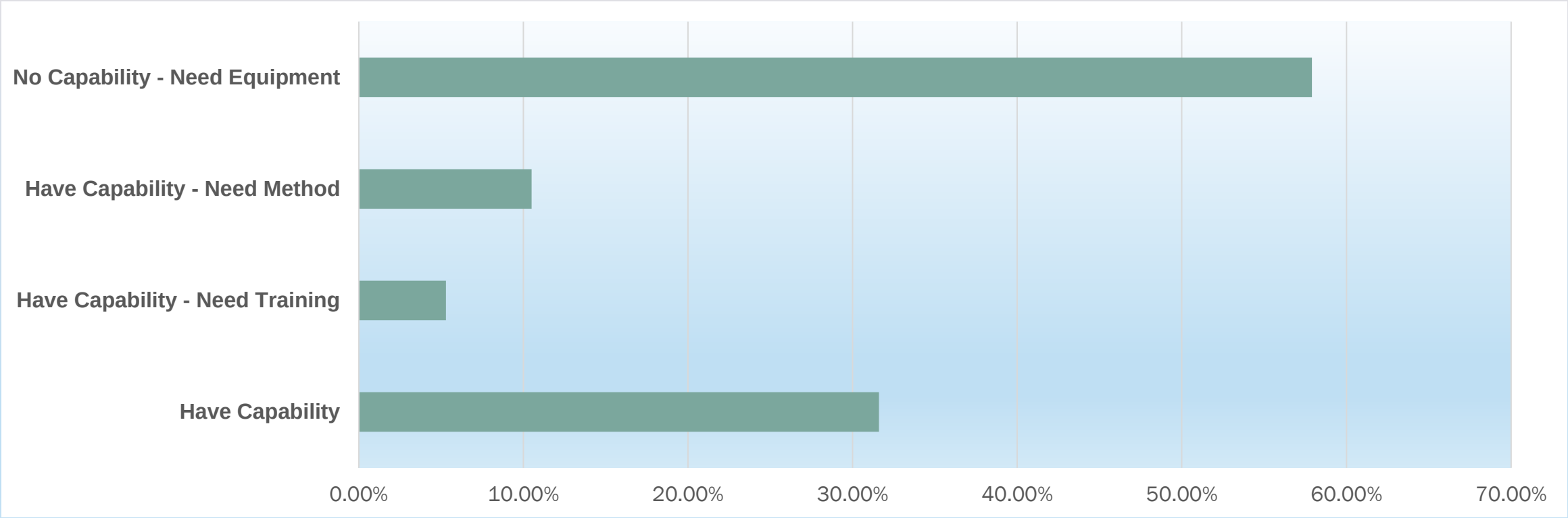
VITAMINS AND VET DRUGS – MONENSIN BY HPLC



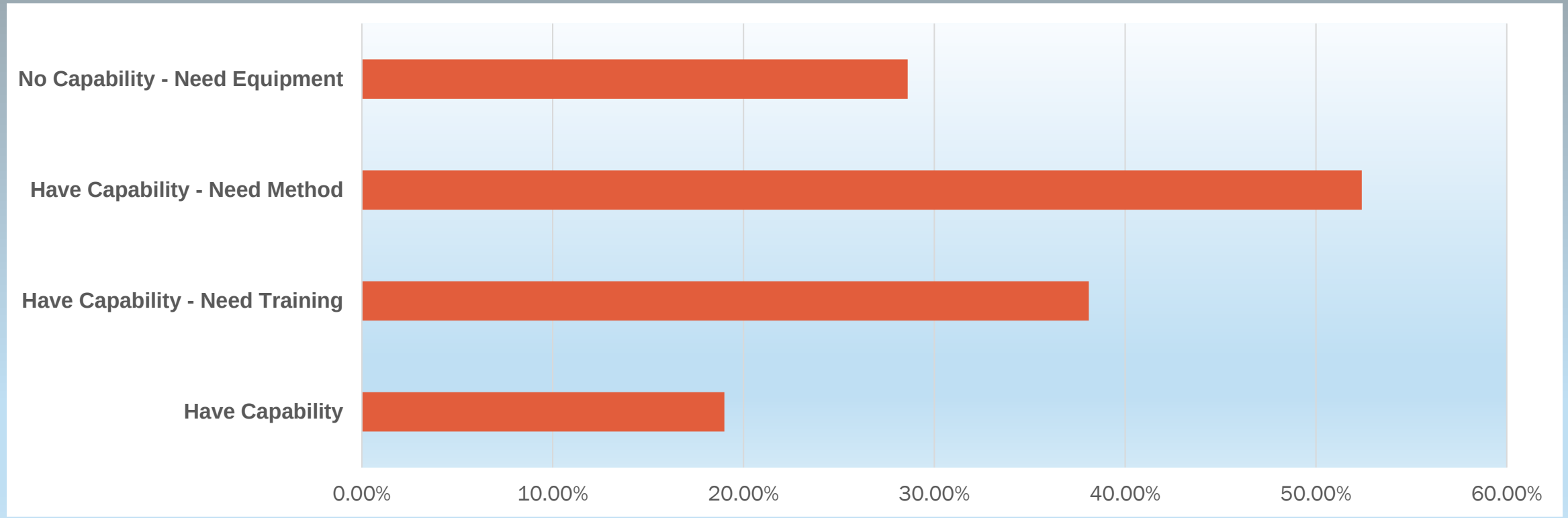
VITAMINS AND VET DRUGS – MONENSIN BY LC/MS



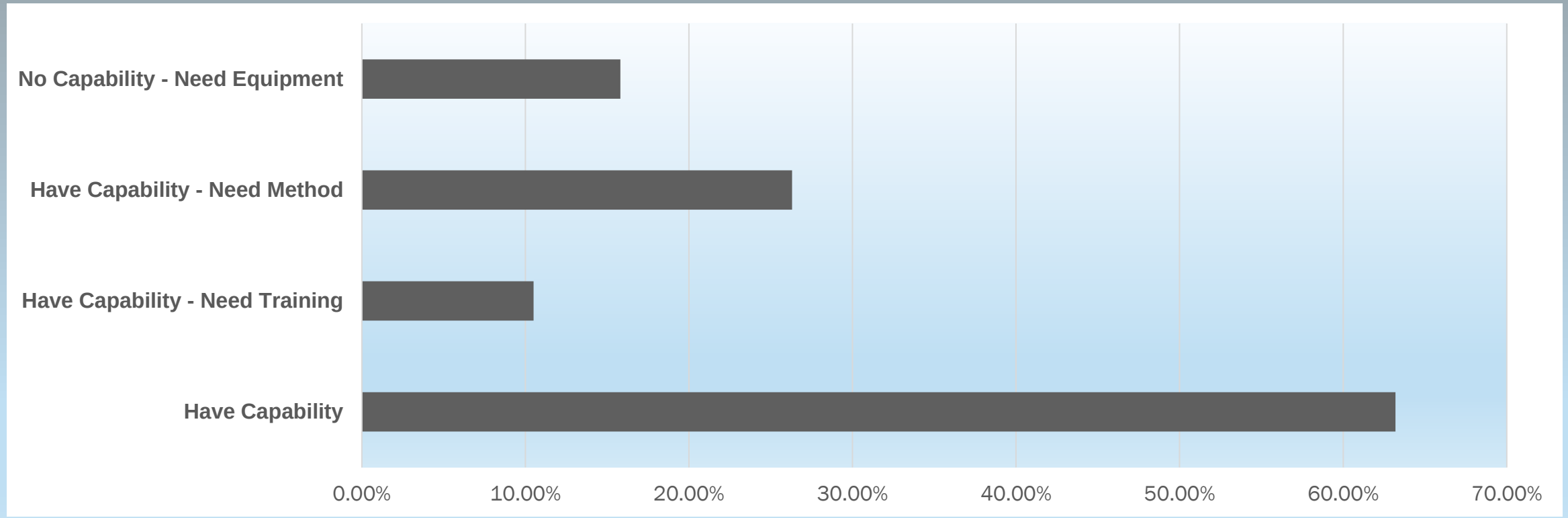
VITAMINS AND VET DRUGS – MONENSIN BY MICROBIOLOGICAL PLATE METHOD



DRUG RESIDUES BY MASS SPECTROSCOPY



PESTICIDE RESIDUES BY MASS SPECTROSCOPY



SUMMARY - MICROBIOLOGICAL CAPACITY

- 27% of the labs responding are chemical testing labs only with no micro capability
- 1 lab responded that they could have this capability but need the proper equipment

SUMMARY – TRAINING NEEDS IDENTIFIED

Low training needs identified

- Toxic metals by ICP
- Mycotoxins – variety of methods based on what equipment lab has
- Pesticide Residues

Medium Training Needs Identified

- Ochratoxin and T2/HT2 being the highest needs
- Monensin LCMS/HPLC

High Training Needs Identified

- Dioxin and Pentobarbitol
- Vitamin D - any method
- Drug Residues LCMS or GCMS

SUMMARY – METHOD NEEDS IDENTIFIED

High Priority Method Needs

- Vitamin D
- Dioxin
- Pentobarbital
- Drug Residues by MS

Medium Priority Method Needs

- Toxic metals including speciation
- Ochratoxin, Zearalenone and T2/HT2 mycotoxins
- Monensin by LC/MS and HPLC

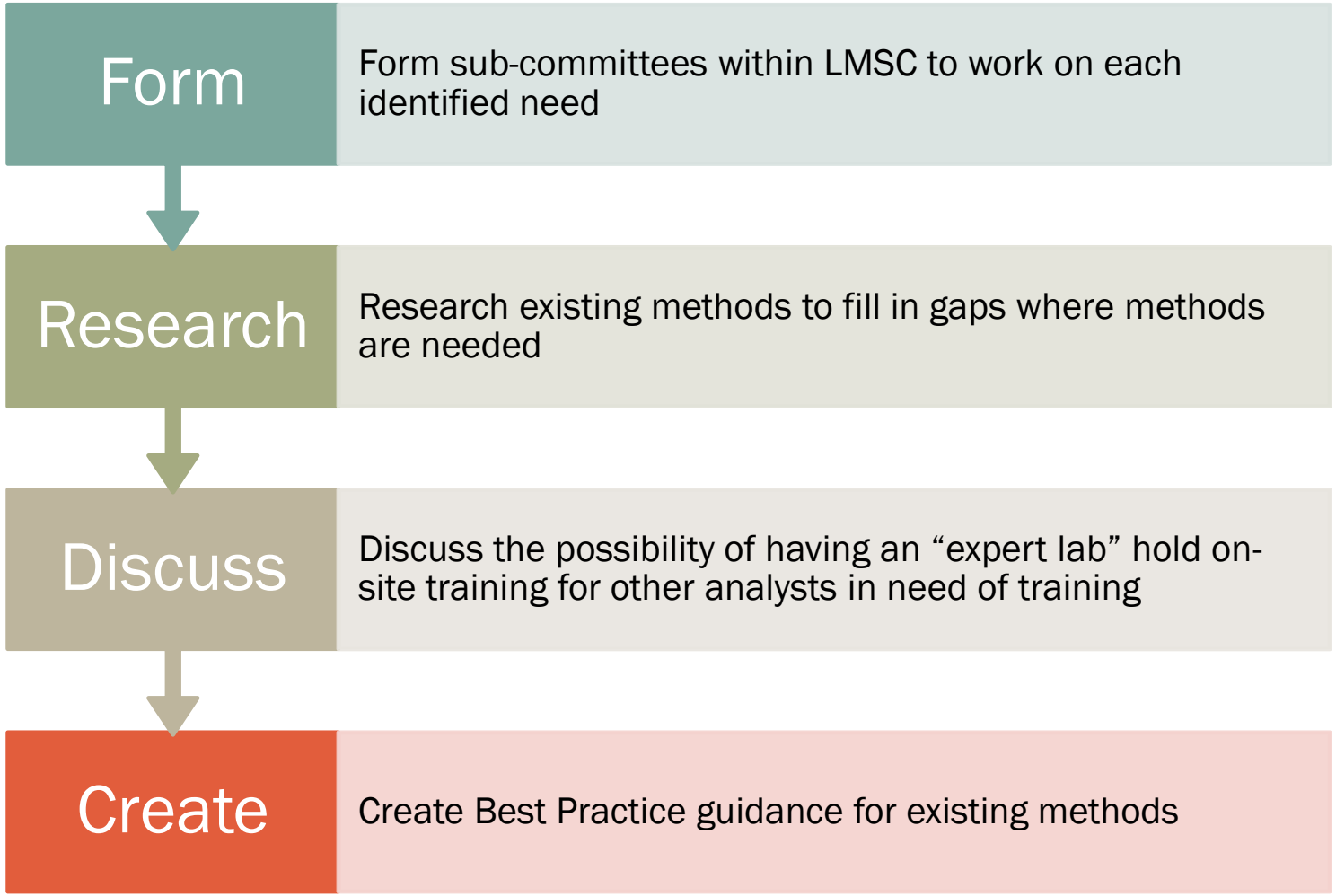
No Method Needs – Well published, variety of methods already exist

- Microbiological Pathogens (Salmonella, STEC, Listeria)
- Aflatoxins, Fumonisin, DON mycotoxins
- Lasalocid by HPLC

SUMMARY – EQUIPMENT NEEDS (NO CURRENT CAPABILITY)

High Priority	Medium Priority	Low (most labs already have the equipment, but personnel might be an issue)
• Plate methods for antibiotics but these methods are antiquated – Is this really a priority if HPLC or LC/MS methods were available? • Vitamin D LC/MS • Dioxin • ICP-MS to perform speciation of toxic metals (Arsenic, Selenium, Chromium)	• Drug Residues by LC/MS or GC/MS • Microbiology testing (pathogens)	• Mycotoxins • Pesticide residues • Toxic metals (ICP-OES or ICP-MS) • Vet Drugs

NEXT STEPS


Form
Form sub-committees within LMSC to work on each identified need
Research
Research existing methods to fill in gaps where methods are needed
Discuss
Discuss the possibility of having an “expert lab” hold on-site training for other analysts in need of training
Create
Create Best Practice guidance for existing methods

THANK YOU FOR LISTENING! THANK YOU TO ALL WHO VOLUNTEERED! THANK YOU TO THOSE THAT RESPONDED TO THE SURVEY!