THE PRACTITIONER'S TOOL KIT

The Art and Science of Inspection: A Short Introduction

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Editor's Note: The National Environmental Health Association (NEHA) strives to provide relevant and useful information for environmental health practitioners. In a recent membership survey, we heard your request for information in the *Journal* that is more applicable to your daily work. We listened and are pleased to feature this column from a cadre of environmental health luminaries with over 300 years of combined experience in the environmental health field. This group will share their tricks of the trade to help you create a tool kit of resources for your daily work.

The conclusions of this column are those of the authors and do not necessarily represent the official position of NEHA, nor does it imply endorsement of any products, services, or resources mentioned.

When we introduced this column in 2022, we promised to share tricks of the trade that we take into the field that are based on good science and use a practical, common-sense approach to environmental health practice. In fact, the topics we offer started as mistakes, misinterpretations, or blatant errors in our practice. The columns are based on what we learned as we set out to make it right. Over the years, the most significant of our embarrassments was the realization that we lacked instruction on how to inspect.

As we said before, we are all quite adept at interpreting codes, rules, regulations, and policies. Unfortunately, applying this skill did not come with an owner's manual. Tradition has it that we learned to perform inspections from a mentor, who learned from a mentor, and so on ad infinitum. The very definition of inspection gives us an idea of how to use it and apply it as both an art and a science. So please, bear with us as we reintroduce this basic structure of an inspection and try to make it as painless as possible.

To begin, an inspection is more than an electronic tablet or clipboard, pen, inspection form, and a gimme-cap. There is nothing routine about a routine inspection. Simply put, an inspection is observation and verification. That is, checking or testing against established standards—regardless of the type of inspection (and yes, there are other categories of inspections)—in an objective manner that embodies scientific methods. Therefore, imagine every inspection as a miniature thesis with two primary purposes. The first purpose is to identify the change in circumstances or arrangements, whether at a restaurant, on-site disposal site, private well, tattoo parlor, or day care center. The second purpose of an inspection is to identify human error, failures in equipment and procedures, or policies and practices that present a risk to human health, safety, or well-being. Our job is to do this work within the backdrop of applicable regulations.

All inspections have a primary objective, which is to determine if practices and controls are adequate to meet requirements and whether the client implements and consistently maintains those practices and controls. The best example of this primary objective is measuring time and temperature and observing personal hygiene habits, particularly handwashing. The secondary objectives of inspections are to identify areas of potential improvement and to evaluate effectiveness in meeting requirements, as well as determine the facility's capability to meet those requirements. Using the food safety example, this objective involves conducting a mini plan review as part of the prelude to the inspection by scanning the menu and assessing if the kitchen equipment and layout can handle the complexity offered to the public. It is difficult to do sushi justice in a pizza parlor.

Understanding the purposes and objectives of an inspection is only the starting point. There are goals that ensure inspection accuracy, repeatability, and fairness. The most important of these goals is also the most difficult to understand—the goal to develop a predictive model to evaluate potential risks to the health of the public. This goal requires approaching the inspection process without bias (for which we are all guilty). Because most regulations are not absolute and their outcomes are not completely authoritarian, no situation fits neatly into a regulation box.

Consider the variability of time as it relates to temperature in food safety, as well as other considerations such as water activity and pH that might contribute to compliance. Therefore, try approaching an inspection with a null hypothesis in which everything is compliant at the onset of the inspection. It is then our professional knowledge, observation, and monitoring skills that identify the deviations from the ideal. We need to be impartial and if possible, completely objective. We understand there are regulatory criteria that require yes or no answers. But even with these criteria, allow for a degree of objectivity, along with an explanation. Approaching an inspection with the null hypothesis helps avoid the most common type 1 statistical error of

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Goals to Ensure Inspections are Accurate, Repeatable, and Fair

1. Develop a predictive model to evaluate potential risks to the health of the public.
2. Gather empirical evidence.
3. Weigh and verify findings.
4. Analyze the results and develop a realistic, workable, and consistent abatement plan or plan for improvement.

committing false positive conclusions, and thereby compromising your credibility.

The second goal of an inspection is gathering empirical evidence, which translates into sampling and instrumentation. Sampling is an art unto itself—to sample without contamination or introducing bias ensures accuracy and fairness. The sampling process should be repeatable and the sample itself should be a representative part of a larger whole or group, especially when presented for inspection or shown as evidence of quality. Consider using a simple random or stratified sampling strategy. But more on this topic in a future article (and also check out our column on practical field sampling strategies in the April 2023 *Journal*, www.neha.org/Images/resources/JEH4.23-Column-Practitioners-Tool-Kit.pdf).

The other half of gathering empirical evidence is the proper use of field instruments. At the very least, read the manufacturers' instructions and be aware of the instrument's limitations, response time, readout, and interpretation of data. Calibrate or validate the instrument's accuracy before going into the field and check the adequacy of the instrument's power source. Most importantly, protect all field instruments against temperature and other physical extremes (e.g., a hot car, damage, contamination) by transporting them in a clean, insulated carrier, and maintain all field instruments in a well-maintained and presentable condition. Remember, improper use and maintenance of sampling tools and poor sampling strategies do not serve the objectives and purposes of the inspection.

The third goal of an inspection is weighing and verifying findings. We achieve this goal by creating a risk prediction model. The risk prediction model combines information about past events, as well as observed changes in conditions or circumstances. Together with these current observations, these data make predictions about future events. This practice is the basis for disease and injury prevention strategies. The data used in the risk prediction model come from your observations, your sampling acumen, and your proper use of field instrumentation. The inspection should be so structured that it is repeatable when done by a colleague.

The fourth goal of an inspection is analyzing the results and developing a realistic, workable, and consistent abatement plan or plan for improvement. Remember, you are the expert. It is your responsibility to translate the findings of the inspection in such a way that it is understandable to the client. Objectivity will allow the client to explore different pathways to compliance. Therefore, the final outcome of an environmental health inspection is prevention, where the preventive efforts become part of the client's normal operations.

Whether you use a paper inspection form or a computer program, the language used to detail your findings can make for ease of compliance, rather than having the client guess at an outcome. As you well know, the inspection process consists of both closed-ended and open-ended requirements. These requirements determine how decisions on abatement or improvement become part of the client's operations. In describing a violation, the most important consideration is the language we use to communicate the regulatory expectation. Closed-ended requirements are very objective, prescriptive, and specific. For example, "Water and ice from an approved source," where "approved source" already has a regulatory definition. On the other hand, open-ended requirements provide the maximum flexibility in interpretation and can (and often are) quite subjective. An example is, "Physical facilities installed, maintained, and clean." What does this statement even mean? If we cite an open-ended requirement, we have the obligation to provide specific language to clarify the intent of the regulation and compliance expectations beyond that written into the regulation. And we need to do so to resolve the differences between expected and planned results.

To gain consensus between the inspector and the inspected, avoid using open-ended words and phrases such as timely, promptly, and ongoing without agreement and clarification. Generalized or broad statements such as control or manage can apply to everything. Be specific. Do not use unclear or undefined words such as suitable, adequate, and exercise care. Each one of us evaluates these words and phrases in generalities based on our life and work experiences. We are all different, as are our interpretations. Do not use words that lack verifiable actions or outputs or provide no prescriptive requirements, such as clean and safe, without asking for desired objective outcomes.

As a final admonishment, never use emotional words and phrases. These include words that could create the appearance of

bias or slanted viewpoint. Words such as very, extremely, exceedingly. and seriously fit into this category. Do not report minor imperfections found during the inspection if there is no added value to public health. Avoid reporting names of individuals unless it is germane to the problem encountered. And never make recommendations. Recommendations confer ownership. On the other hand, suggestions provide guidance.

We always found it quite useful to provide the inspected with the names and contact information (with their kind consent, of course) of at least three businesses and individuals who successfully dealt with similar conditions and situations cited in an inspection report. This practice is particularly important for those violations deemed serious or that require significant modifications or additional services to correct physical plant deficiencies or operations.

As a final note, the information on the art and science of inspection started about 10 years ago in preparation for a lawsuit against an environmental health specialist at a health department. The errors made during this individual's inspections were significant and extreme, costing the restaurant owner loss of income and unwarranted damage to the restaurant's good reputation. One of the authors of this column served as an expert for the plaintiff and prepared a report detailing the errors and shortcomings of the inspection process and subsequent actions taken against the operator based on those errors. The case settled out of court with considerable compensation paid to the restaurant owner and the health department issued a public letter of apology. Significant to the settlement was an agreement by the health department that its inspectors receive training on conducting inspections and issuing reports. This situation could have been prevented by persistent instruction on the art and science of inspection and professional deportment.

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