

Portable Fire Extinguishers

Lines of Business: Property, General Liability

Risk Control Strategy/Key Issues: To provide tools that will help to mitigate or control incipient fires before they escalate out of control and thereby prevent extensive property damage.

Suggested Program Elements:

1. Effective fire fighting requires the right type of fire extinguisher, and that depends on what is burning and the size of the fire. Once a fire is underway, it is too late to search for the appropriate extinguisher. The choice of extinguisher and the placement of that extinguisher must be done before a fire event. Fire extinguisher selections and placements are usually governed by OSHA and NFPA guidelines. Because environments may change, property owners should review the selection and placement of all extinguishers at least annually, more often if there are changes in the use and fire loading of areas within the facilities.
2. Fire extinguishers are classified for the types of fire on which they may be used by a letter system (A, B, C, D), which is related to the extinguishing agent within the extinguisher. Extinguishers are also given a numeric value to denote extinguisher capacity. For example, an extinguisher might be labeled 2-A, 20-B, or carry a multipurpose rating such as 3-A: 40-B: C – there are many grades. The higher the numeric value, the larger the fire the unit is designed to extinguish. It is very important to use the correct extinguisher for the type of fuel. Using the incorrect extinguishing agent can be dangerous, ineffective, or allow the fire to reignite:

Fire Extinguisher Classifications are as follows:

- **Class A:** For use with ordinary combustibles, such as wood, trash, textiles, paper, cardboard, rubber, and many plastics. Class A fires are extinguished by the cooling action of water or water-based agents or by the insulating and fusing action of general purpose dry chemical or foam agents.
- **Class B:** For use with combustible and flammable liquids – such as gasoline, oil, tar, grease, alcohol, diesel and home heating oils, lacquers, and oil-based paints – and flammable gasses.
- **Class C:** For use with energized electrical equipment. An extinguisher intended for electrical fires will always bear a dual classification, e.g., B:C or A:B:C, because the extinguishing agent must be compatible with the material that is burning – electricity itself is not a fuel and does not burn. Because of the electrical shock hazard, fires that involve live electrical components or wiring should be extinguished by a non-conductor of electricity, such as CO₂ or a general purpose dry chemical. Never use water on an electrical fire unless the power is cut-off, in which case a Class A, B, or D extinguisher may be used, depending on the combustible material.
- **Class D:** For use with combustible metals such as magnesium, zirconium, sodium, potassium, lithium, uranium, powdered aluminum, and titanium. Class D fires are extinguished by a special powder (specific to that metal) that seals the burning surface and smothers the fire.
- **Class K:** For use with cooking oils and grease fires – animal or vegetable fats – that are typically extinguished by cooling, shutting off the air supply, and smothering the blaze.

3. There are eight types of fire extinguishers. They are as follows:
 - **Water & Foam** (AFFF foam and FFFP foam) fire extinguishers douse the fire by taking away the heat element. Foam agents also separate oxygen from the fuel. Water extinguishers may be used only for Class A fires. Foam extinguishers may be used on Class A and Class B fires. Stored water extinguishers offer extended distance and duration.
 - **Carbon Dioxide (CO₂)** fire extinguishers snuff out the fire by taking away the oxygen element and by removing the heat with a very cold discharge. Carbon dioxide can be used on Class B & C fires and leaves no residue – important for sensitive equipment.
 - **Dry Chemical** fire extinguishers put out the fire primarily by interrupting the chemical reaction. Today's most widely used extinguishing agent is a multipurpose dry chemical (e.g., ammonium phosphate) that is effective on Class A, B and C fires. Ordinary dry chemical agents (e.g., sodium bicarbonate or potassium bicarbonate) are for Class B & C fires only.
 - **Wet Chemical** is a new agent (a low PH, potassium acetate based agent) that extinguishes the fire by removing the heat and prevents re-ignition by creating a barrier between the oxygen supply and the fuel for the fire. Wet chemical or Class K extinguishers are developed for modern, commercial high efficiency deep fat fryers.
 - **Clean Agent or Halogenated** extinguishers include halon extinguishing agents (such as chlorine, fluorine, and bromine) as well as the newer and less ozone-depleting halocarbon agents. They extinguish fires by interrupting the chemical reaction, cooling, and smothering. Clean agent extinguishers are primarily for Class B & C fires, but can be used on Class A fires as well.
 - **Dry Powder** extinguishers are similar to dry chemical agents except that they extinguish the fire by separating the fuel from the oxygen supply. Dry powder extinguishers are for Class D combustible metal fires only. They are ineffective on all other classes of fire.
 - **Water Mist** extinguishers are primarily for Class A fires, but they are also safe for use on Class C fires. These extinguishers quench a fire by taking away the heat element. They are an alternative to clean agent extinguishers where contamination is a concern, such as in health care and high tech facilities.
 - **Cartridge Operated Dry Chemical** is effective on Class A, B and C fires. These fire extinguishers put out a fire primarily by interrupting the chemical reaction of the fire. The agent also works by creating a barrier between the oxygen supply and the fuel in Class A fires.
4. Fire extinguishers should be located so as to provide easy accessibility. They should be placed near normal paths of travel or near entrance and exit doors, and should be protected from damage. They should not be placed where they could be blocked. Fire extinguishers should be readily visible. They should be wall mounted about 3.5 feet above the floor where they can be easily removed from supporting brackets without the user incurring a lifting or reaching injury.
5. All fires can be very dangerous and life-threatening. Personal safety should always be the primary concern when attempting to fight a fire. Call the local fire department before attempting to fight the fire with an extinguisher. Before attacking a fire:
 - Make sure you have the proper fire extinguisher for what is burning.
 - Be certain that the fire is incipient, that is, small and not spreading rapidly. Fires can double in size in seconds or minutes.

- Stand several feet away from the fire, moving closer once the fire starts to diminish.
- Always stand with an exit at your back.
- Use a sweeping motion and aim at the base of the fire and work the agent into the fire.
- Be sure to watch the area for at least fifteen minutes after the fire appears to be out to be sure it doesn't re-ignite. If it is smoking, it is not out.
- If possible use a "buddy system," that is, have someone back you up or to call for help if something goes wrong. Exit the immediate area facing the fire or fire-affected area.

Calendar of Events:

- Fire extinguishers should be maintained in the best possible condition at all times. They should be inspected at least annually by qualified personnel.
- There should be a tag listing the date of inspection or service on the extinguisher.
- Many establishments require a monthly or quarterly visual check of each extinguisher. Ensure that the pressure is at the recommended level. On extinguishers equipped with a gauge, the needle should be in the green zone – not too high and not too low.
- Make sure the nozzle or other parts are not hindered in any way and that the pin and tamper seal are intact. Also make sure there are no dents, leaks, rust, chemical deposits, or other signs of abuse or wear.
- To be effective, occupants need to be aware of where the extinguishers are located, what the label codes mean, and how to use each type of extinguisher on the premises. As many occupants as possible should receive hands-on training. Your local fire department may offer training.

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Benchmarking, Best Practices, and Performance Measurements for Public Entity Risk Management

Guidelines

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TABLE OF CONTENTS

The Benchmarking Process . . .	1
Best Practices in Risk Management	7
Performance Measurements in Public Entity Risk Management	8
Endnotes	10
Bibliography	11
Sample Better/Best Practices . . .	12
Benchmarking Chart . . .	16
Property Exposures	17
Workers' Compensation . . .	19
Auto Liability	21
Public Officials Liability . . .	22
General Liability . . .	23
Law Enforcement ...	26
General Safety . . .	27

Risk Management Administration . 28

Environmental Health . 29

Emergency Management 30

THE BENCHMARKING PROCESS

This guideline is intended to provide direction on benchmarking a public entity risk management program. For years, public entity risk managers have shared ideas. Benchmarking is a more formalized approach to what has been done all along: sharing and adopting best practices. Volumes have been written on the benchmarking process, and each author has his or her own definition. Many of these definitions conflict. We chose the following definition in order to reach agreement on various benchmarking processes:

- Benchmarking - The Process of identifying, learning, adapting, and measuring outstanding practices and processes from any organization to improve performance.(1) This definition supports a commitment to quality.
- Benchmark - A standard or point of reference used in measuring and/or judging quality or value.

Philosophy

This study goes beyond the traditional benchmarking of simply comparing numbers. It seeks best practices and standards to use as goals for improvement. It seeks to find qualitative measures in addition to quantitative ones. Benchmarking which focuses on measurable results usually focuses on measuring loss costs, rather than determining the cause of good results. We want to move from comparing financial data to comparing specific functions and procedures. Operating ratios fall short of providing meaningful direction. Financial result measurements are important; however, they fail to look at best practices of other organizations, that, when adopted, will improve the entity's future results. Their focus is on numbers, rather than actions. The endeavor to improve is the focus of this project. We want to identify the costs, what drives these costs, what best practices can reduce those costs, and adopt the practices to reduce the performance gap.

Benchmarking will help identify a risk management program's strengths and weaknesses.

It lays the groundwork for improvement. Benchmarking provides value when we are willing to change. We recognize a need for improvement and the will to start making changes. Simply collecting the data is not enough. We need to use it to improve.

Benchmarking is a component of total quality management. Use the benchmarking data for improvement, not to criticize poor results. Benchmarking is more an art than a science. Calculating the cost of risk is scientific. Selecting an area to benchmark, a partner with best practices, a measurement tool, and determining how to reduce the gap are an art. Benchmarking is not an end-all process. It is the beginning of change. Just benchmarking financial results will not help us. We need the process in order to improve and thus improve the financial results. Benchmarking is more than a measurement tool; it is a performance improvement tool. We begin with basic paint-by-number and with each stroke we create an original oil painting. In the private sector, the mission of benchmarking is to gain an advantage over competition. (2) If public entities do not compete as in the private sector, why would we want to benchmark? The answer is in a basic commitment to quality, humanitarian concern, pursuit of cost reduction, and competition for budget dollars and resources.

What is Risk Management?

Dr George Head, Insurance Institute of America, defines risk management as "a process that includes the four functions of planning, organizing, leading, and controlling business losses on that organization at reasonable cost."(3) Using this definition, we find that risk management functions can and do vary from entity to entity. In order to benchmark, we need to compare consistent data from one organization to another. Therefore, it is important to keep in mind differences both in organizations and risk management departments and functions as we proceed in the benchmarking process.

Risk management includes:

- identifying loss exposures,
- examining techniques to treat those exposures,
- selecting the apparent best technique,
- implementing the chosen technique, and
- monitoring and improving the risk management program. (4)

Risk management is more than reducing claims and saving dollars. It has qualitative aspects which are humanitarian in nature. For example, a risk manager adds value when motivating and employee to return to work in a productive role after a work-related injury.

Mission and Goals

Before beginning the benchmarking process, we must understand our mission and goals. We would expect the mission and goals for risk management to vary from entity to entity. However, some of the basic purposes of risk management will not. Risk management focuses on controlling losses and costs, but it also provides an overall resource to the entity, staff, and the general public. It helps control risk, while managing costs.

Risk management goals must support the overall organization goals. Benchmarks must relate to risk management goals. We need to measure things which indicate if we are accomplishing our goals. According to Watson (5), benchmarking needs to support the organization's strategic objectives. The benchmarking process provides challenging, but attainable goals. To benchmark, one must be able to admit there is room for improvement.

Cultural Readiness

Public entities are under the constant scrutiny of the public eye. They are run by elected officials who are concerned about responsiveness to their constituency. Politics influence some decisions. Because of this, public entities operate in a different environment from the private sector. A high level of trust among employees and management leads one to an openness and willingness to change and improve. Distrust, on the other hand, can hinder the benchmarking process. If one is more concerned about perception than making improvements, the process will be less than optimal. A results-oriented environment supports the process. Communications and management style are also important to the benchmarking process. Sharing ideas will promote the process; secretiveness will hinder. Democratic styles tend to make benchmarking easier, whereas authoritarian--and sometime bureaucratic--styles prevent successful benchmarking.

Evaluate your entity's cultural readiness, before beginning benchmarking. Discuss it with your supervisor to be sure you have support. Get commitment from senior management. You need support to implement change. Consider you entity's readiness when selecting areas to benchmark. Your organization may be ready for change in some areas, and not in others.

Benchmarking Process

Authors disagree on the benchmarking steps. As a benchmarking committee we selected the "Seven-Step Benchmarking Model." (6) These steps simplify benchmarking as a process and allow us to focus on risk management practices and improvements. Using this 7-step process and the chart section of this Guideline, each public entity can benchmark its risk management practices. The steps are outlined in the model. Risk management practices are provided in the Chart, along with better/best practices and performance measurements.

Seven-Step Benchmarking Model

1. Identify what to benchmark.
2. Determine what to measure.
3. Identify who to benchmark.
4. Collect the data.
5. Analyze data and determine the gap.
6. Set goals and develop an action plan.
7. Monitor the process.

BEST PRACTICES IN RISK MANAGEMENT

Best Practices for this Guideline are defined as:

Best Practices -- The tools and activities used in the benchmarking process.

The Benchmarking Chart section of this Guideline provides numerous better/best practices for public entity risk management. An entity may select from this chart or elect a best practice of its own choosing. The purpose of this Chart is to simplify the process, not to limit the selection. The sample better/best practice list provides organizations against which one can measure its performance. You may need to review several entities before selecting the "right" benchmark partner. In fact, an entity may even want to select a private organization, if its risk management function is similar in nature. It might even choose to compare itself over time rather than comparing itself to another entity. This only works if you are already adopting better/best practices.

PERFORMANCE MEASUREMENTS IN PUBLIC ENTITY RISK MANAGEMENT

Performance measurements are at the heart of any benchmarking process. This guideline uses the following definition: **Performance Measurement** -- The measuring of practices and processes against your pre-determined goals. Sample performance measurements are provided in the Benchmarking Chart. You may select any of these performance measurements, or determine your own appropriate measurements for benchmarking. You may select a quantitative and/or a qualitative measurement. Keep in mind that a calculation which appears to be quantitative may actually be measuring the quality of your risk management program. For example, an excellent return to work program will reduce claims and losses. You may not be able to determine an appropriate qualitative measure, or the cost of using a qualitative measure may be prohibitive. Do not let this deter you from benchmarking. Simply select another measure. Performance measures ought to relate to your entity's strategic goals and objectives. They should provide timely, relevant, and concise information to help assess progress toward goals. Avoid collecting data because it is readily available, easy to measure, or makes one "look good." Instead, use performance measurements which accurately reflect the entity's performance, accomplishments, and progress toward goals.

Avoid punitive performance measures. Measurements should help identify what is working and improve on areas, rather than being a "gotcha" system. Be careful not to develop misleading or erroneous information. Focus on the right things. If you are measuring claim count and you do not include your claims which are closed without payment, don't include those claim numbers from your benchmark partner. Keep in mind, "What gets measured, gets done."⁽⁷⁾ After you select your performance measurement, you will need to gather data. This can be difficult. Data need to be complete, consistent, relevant, and organized.

- Complete -- In workers' compensation, for example, all losses are included, not just the ones reported to the State.
- Consistent -- Data need to be trended for inflation.
- Relevant -- Data should be relevant to what you are measuring. For example, liability losses need to include loss payments plus defense and investigation costs. Property values need to use replacement cost, rather than book value.
- Organized -- Data can be by accident year or in ascending or descending order, depending on your needs.

You will need to verify that your benchmarking partner is using the same type of data.

For example, when using incurred loss data (paid losses plus reserved losses), the losses should be actuarially developed to their estimated ultimate value. Losses are then compared to payroll units (usually \$100 of payroll). Similarly, claim counts should be actuarially developed and compared. A public entity might be tempted to compare itself to one in another state. However, if you are comparing loss costs or insurance premiums, differences in statutes can create large differences in loss and insurance costs. Carefully define what you're going to measure. Performance measurements should be: (8)

- Valid,
- Reliable,
- Understandable,
- Timely,
- Consistent,
- Resistant to perverse behavior,
- Non-redundant,
- Sensitive to data collection costs, and
- Focused on controllable facets of performance

Keep in mind we are breaking new ground. Do not get frustrated with the inability to have a perfect system. Benchmarking is a process. Benchmarking in public entity risk management is very new and we do not have all the answers!

ENDNOTES

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2. Watson, Gregory H., The Benchmarking Workbook, Productivity Press, Portland, OR, 1992, p.3.
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4. Ibid.
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