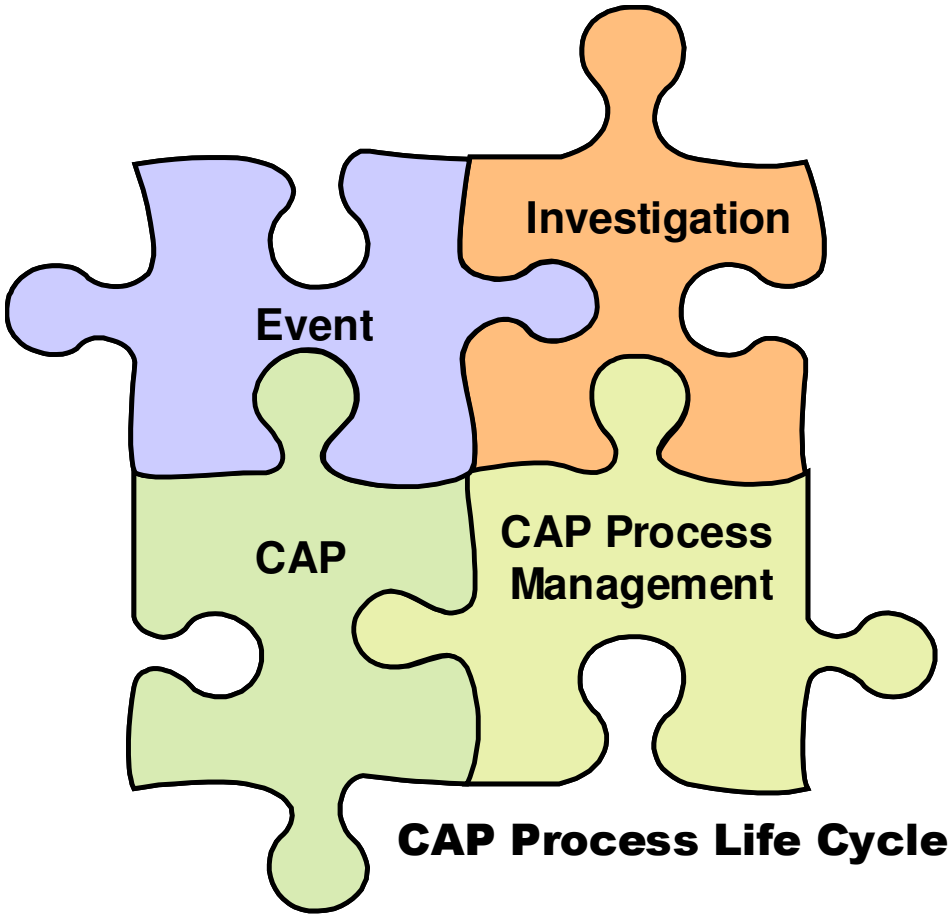
County of Los Angeles
Chief Executive Office

Corrective Action Plan User's Guide



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Your comments on this guide are welcome. If you have any questions, or would like to request additional copies or related corrective action plan information, please contact:

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This *Corrective Action Plan User's Guide (User's Guide)* is intended for the use of employees of the County of Los Angeles, its departments and vendors. This is an unpublished work by the County of Los Angeles, Chief Executive Office, Risk Management Branch.

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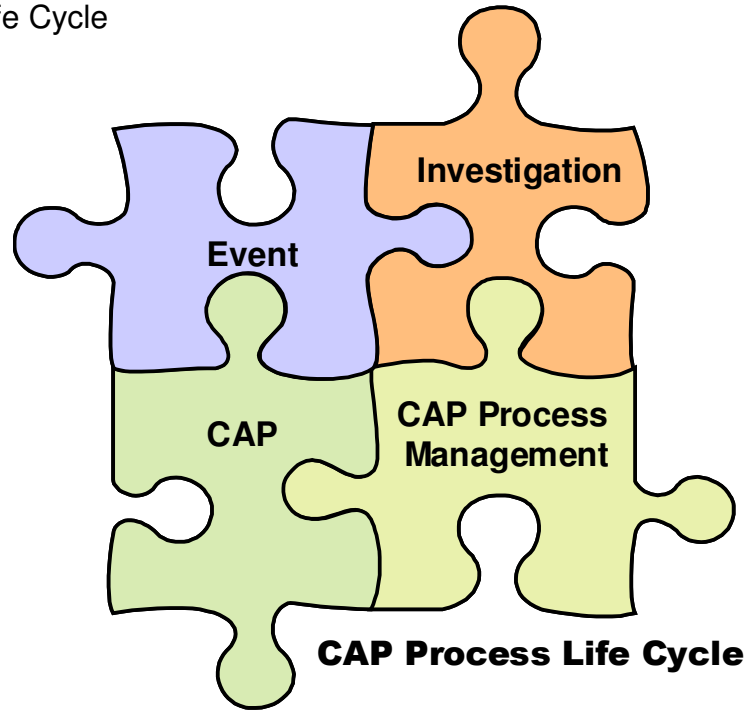
Introduction

This *User's Guide* was developed to help County of Los Angeles (County) departmental managers understand the science and art behind the development and implementation of Corrective Action Plans (CAPs) and Summary Corrective Action Plans (SCAPs). The manual is intended to provide concepts, tools and processes to enable a manager to recognize the events which lead to a loss event, determine the root causes of the event, develop a CAP and/or SCAP, and prevent event recurrence. The *User's Guide* is set up based on the four phases in the CAP life cycle outlined in Figure 1.

Figure 1. CAP Life Cycle



The process outlined in the User's Guide is based on four critical components of a CAP:

1. The EVENT which resulted in a loss.
2. The INVESTIGATION process.
3. The development of the CAP.
4. Management of the CAP PROCESS.

What is a CAP?

A CAP is a collection of corrective actions put together so that the aggregate plan will eliminate the causes of the process nonconformance. A SCAP is a document that provides an executive summary of a CAP and in some instances can be used as a surrogate for a CAP. The plan includes the corrective actions, who is responsible for the entire plan, and criteria to measure effectiveness of the plan. Many managers are

confused about the differences between a CAP, a corrective action step and the corrective action process. Most people understand the relationship between cause and consequence, that when a loss event occurs management expects the situation to be evaluated and abated. Most managers and supervisors have conducted accident investigations or evaluations of processes to determine if they can be done more efficiently. What most managers do not fully understand about the corrective action planning process, is what the requirements of the process actually are. This *User's Guide* discusses the nature and purpose of the corrective action process. It illustrates how the process is integrated into the various other functions within the County.

As a concept, corrective action sounds like a good idea. All managers want to fix the things that go wrong in their department. However, the corrective action process is more than just fixing things. It involves researching the cause of a problem, developing a plan, deploying that plan, and implementing a process to ensure that the fix worked. It is a methodology for addressing problems throughout a department and for realizing improvement. It is not a complicated process, but it is a process. This *User's Guide* provides a simple-to-follow process to draft CAPs (and SCAPs) that extend from root cause analysis through final problem closure verification and monitoring.

Departmental personnel know their jobs. They know their departmental culture, its equipment, and procedures. They also understand the pitfalls, limitations, and the constraints that may exist. What they need is an easy-to-understand plan that combines their knowledge and resources into a process they can use to solve problems, abate or mitigate hazards, and address the root causes of loss. They also want assurance that this activity does have a purpose. It is important for County supervisors and managers to have confidence that the time and effort they have invested in addressing a problem will yield measurable results. A well developed CAP will provide both a road map to success and an assurance to department personnel that their efforts will provide a tangible contribution to the success of the County.

Before we proceed, a few terms need additional clarification:

Remedial Action:	A specific action done right away to minimize or abate the situation until you can figure out how to really fix the problem.
Preventive Action:	A specific action to eliminate the specific cause of a potential nonconformance in order to preempt the occurrence.
Corrective Action:	A specific action to eliminate the specific cause of a nonconformance in order to avoid recurrence. A corrective action identifies the action taken, the responsible person, a time frame, and a description of what the corrected state will look like for a specific action to be taken.
Corrective Action Plan (CAP):	A collection of corrective actions put together so that the aggregate plan will eliminate the causes of the process nonconformances. The plan includes the corrective actions, who is responsible for the entire plan, and criteria to measure the effectiveness of the plan.
Corrective Action Process:	A process intended to guide the County to establish a process to abate hazards, communicate, and evaluate CAPs for effectiveness and closure.

An overview of the corrective action process

A corrective action is a good business practice. The corrective action is initiated to investigate what causes a problem in order to formulate and implement plans for correction and to prevent recurrence. A CAP is intended to address loss-specific situations, while the corrective action process is intended to guide the County to establish a process to abate hazards, communicate, and evaluate CAPs for effectiveness and closure. Basically, the process involves troubleshooting a problem, initiating actions to fix the problem, and checking to verify the fix worked. The corrective action process involves:

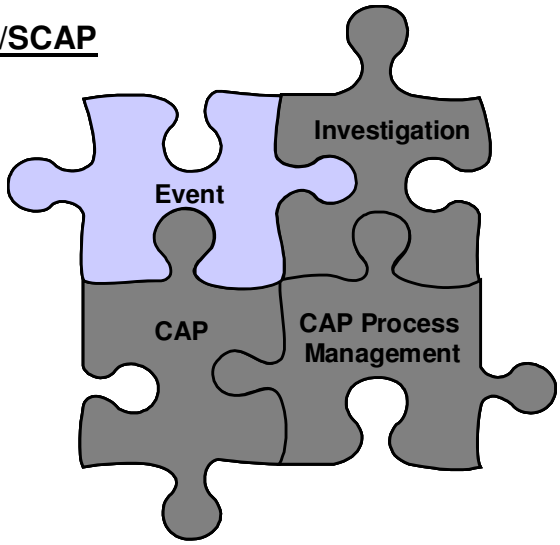
- Identifying the problem (potential loss exposure or program opportunity)
- Researching/analyzing the causes of the problem or potential benefits
- Developing a plan to correct the problem and to prevent recurrence
- Executing the plan
- Verifying the plan worked (monitor the process)
- Communicating "lessons learned" to the organization

In order to establish a comprehensive corrective action process, the principles behind the process need to be understood and communicated to all affected employees. One of the critical components of a successful process is that it is well defined, uniform and documented. A corrective action process, like all quality programs, must have structure and the same conditioning factors inherent in other quality control processes, such as: documentation, consistent implementation, control, verification, and record retention. Like any other process within the County, the corrective action process is most effective when it is well defined. The elements of the corrective action process that need to be standardized include:

- Criteria for initiating a CAP
- Root cause analysis
- Obtaining input from relevant sources
- Communication
- Developing a thorough plan
- Timely response
- Implementation
- Documentation
- Record retention
- Verification and follow-up

As with the CAP itself, the amount of detail and the resources dedicated need to be appropriate for the department and the complexity of the CAPs generated. It should be remembered that effectiveness does not necessitate complexity or undue expense.

Events that trigger the development of a CAP/SCAP



One of the fundamental questions in the development of a CAP and/or SCAP is "Why is a corrective action taken?" The intent of a corrective action is to eliminate the cause of nonconformities in order to avoid recurrence. A corrective action is a well-researched intervention to a process to prevent recurrence of an event which resulted in loss. Does this mean we have to wait for a catastrophic loss event to occur before implementing a corrective action? The answer is NO. We have many indicators of potential nonconformities within our processes that may initiate the need for a corrective action prior to a large scale loss event. Within the County we have many situations that may warrant the creation of a CAP. These events include, but are not limited to:

- Board of Supervisors (Board) mandated CAPs as a result of tort liability claim settlements in excess of $100,000 and SCAP required for all settlements over $20,000 for general and automobile liability and $100,000 for medical malpractice claims.
- CAPs developed as a result of a work-related injury or illness
- CAPs developed in response to substantial property damage events
- CAPs developed as the result of third party (audit, consultant, or Grand Jury report) or management direction
- CAPs developed in response to customer and constituent complaints, poor quality, and/or process nonconformance

Although there are many situations when the development of a CAP and/or SCAP may be necessary, managers need to understand and accept the rationale behind the development of CAPs. In order to have a successful Countywide CAP process, the intent of the CAP program needs to be communicated and understood by all affected County personnel, contractors, and vendors. Another concept which may confuse the CAP process is the difference between a remedial action and a corrective action. A remedial action is what you do right away or until you can figure out how to really fix the problem. It is the tourniquet applied to the problem, not the surgical procedure that

permanently repairs the source of the problem. Some problems do not warrant a corrective action. If it is a simple, isolated incident, the remedial action may be all that is appropriate. For these types of cases, there is no justification for delving into a root cause analysis or documenting a plan. Remedial action steps can be incorporated into the CAP and /or SCAP, and in most cases they are. Remedial actions fall into four broad categories:

- Repairing or reworking defective product
- Temporary substitution of a component
- Implementing an interim procedure or process
- Retraining a specific individual

Remedial actions are often the "quick fix" developed to address an immediate need or to abate a hazardous condition. A remedial action should not circumvent the corrective action process if a CAP is necessary. One of the most common problems in preventing an event from recurring is the solution was not developed in such a way to address the underlying root cause of the loss. The solution was temporary in nature and over time lost its effectiveness.

The County liability loss CAP/SCAP process

Although there are many reasons to draft CAPs, one of the major initiators of CAPs in the County is the requirement to develop a comprehensive CAP for tort liability settlements in excess of $100,000 and/or a SCAP for settlements over $20,000 ($100,00 for medical malpractice). These requirements were established by the Board of Supervisors and was intended to place the ownership for the development of management plans to prevent event recurrence back to the departments where the initial loss occurred. Figure 2 outlines the Board CAP/SCAP process.

Figure 2. Board of Supervisors Tort Liability Settlement CAP/SCAP Process

LOSS EVENT OCCURS

1. **Initial supervisor investigation occurs**
2. **Initial remedial action (hazard abatement) occurs**
3. **Claim and/or lawsuit is filed against the County**
4. **Claim/lawsuit is adjusted and investigated to determine liability and exposure**
5. **Claim settlement is proposed and accepted in excess of $20,000 ($100,000 for medical malpractice), Board of Supervisors required SCAP is submitted by department**
6. **Claim settlement is proposed and accepted in excess of $100,000, Board of Supervisors required CAP is submitted by department (in addition to SCAP)**
7. **CAP and/or SCAP is submitted with settlement documentation to the County of Los Angeles Claims Board (Claims Board)**
8. **Approved CAP and/or SCAP and settlement documentation is forwarded to the Board of Supervisors**
9. **Board of Supervisors approves CAP and/or SCAP and settlement**
10. **Approved CAP and/or SCAP is implemented[1]**

1. Elements of CAP and/or SCAP may already be implemented during the initial remedial action process and subsequent loss mitigation activity.

Who should be involved in the developments of CAPs and/or SCAPs?

Many individuals have a role in the corrective action process; some are often excluded because their value has not become apparent to management or the individuals writing the CAP. In many departments, a line manager ends up with responsibility for generating the required CAP. They end up owning the root cause analysis and the corrective action. In many departments, these people carry more than one title. The pool of ideas is proportionally decreased, further minimizing the problem-solving resources and expertise. These individuals are limited by time constraints and limited by their own perception of the problem. It often does not occur to them to enlist subordinates in their own department to delegate part of the process, or request help from other areas. Many managers perceive the CAP request as another obstacle in their path or another fire they need to put out. They are so caught up in the fire-fighting exercise that they focus only on completing the CAP, in some cases not paying any attention to the quality of the CAP or making certain the CAP actually addresses the original problem.

Managers may exclude some stakeholders, such as safety representatives, engineering group, or the finance and legal departments. They may view asking for help as "dumping" responsibility for what is sometimes considered a wasteful activity. In terms of this corrective action model, it is helpful to know what resources are available to help in performing the root cause analysis and developing the CAP. These people are the process stakeholders and should be counseled when appropriate. These are the people who may:

- Have the information you need
- Understand the process related to their jobs
- Generate the necessary records and process documentation
- Interface with external customers, vendors, and the public
- Have a talent you can use

Another major reason for identifying your CAPs' critical stakeholders is to remove the attitude that they are part of the problem. When a stakeholder participates in the CAP and/or SCAP process and buys off on the necessary process improvements, they become a champion of the change process and will be instrumental in supporting the change process once the CAP and/or SCAP has been implemented. It is important that the author of the CAP and/or SCAP considers the stakeholders as assets and potential problem-solvers. A note of caution in soliciting support for the corrective action process: many people may not always be authorized to participate in the process. It is important to recognize those times when it is either mandatory or common courtesy to approach a manager or supervisor before recruiting an individual. The person's time may be devoted to another task or project. The supervisor may simply need to be made aware of the fact that his or her employee may be temporarily allocated to another task to make appropriate schedule revisions.

The following list represents groups to consider when drafting CAPs and/or SCAPs. These individuals may need to understand and participate in the corrective action process. It is important to remember that in small departments, these should be categorized as functions, since one person may have multiple responsibilities. Table 1 outlines the individuals who may participate in the CAP process and their potential role.

Table 1. Potential roles of groups in the CAP and/or SCAP process

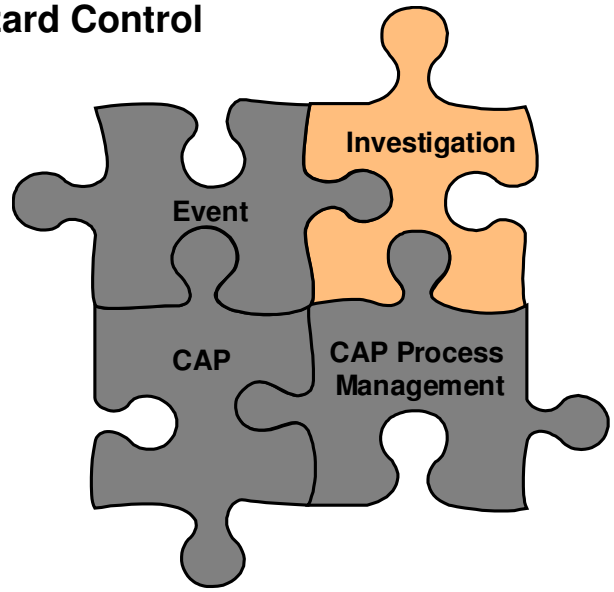
Groups to Consider	Potential Role in Process
Senior management (including Department Head)	• Need to understand and approve the process it expects others to employ on their behalf • Some of the corrective actions may involve or be initiated by members of the leadership team • Owns and is responsible for the corrective action process • Approves resources and funding for CAPs and/or SCAPs
Managers	• Need to be aware that root cause analysis may involve looking at multiple processes and procedures within their department • May be conducting or participating in the development of the root cause analysis and the CAP and/or SCAP • Will be required to implement the corrective actions within their departments • The CAPs may affect resources, scheduling, staffing, and services
Financial and legal personnel	• Accounting and legal records may be confidential. Staff developing the CAP may need authorization to review records • CAPs and/or SCAP may require a financial analysis or cost justification • Outside attorney liability analysis or investigations may be used in the root cause analysis and will have to be provided by County Counsel • Completed CAPs and/or SCAP may be confidential and need to be drafted under the direction of County Counsel in order to be protected
Human resources	• May maintain records of employee training and qualifications • If employee discipline is a part of the CAP and/or SCAP, they will need to be involved to assure the process is in accordance with County policy, etc. • Coordinate training activity • Update job descriptions and other relevant documentation • Maintain employee performance records
Supervisors and leads	• Have a wealth of information related to specific processes and procedures and can be valuable in the root cause analysis and development of CAPs and/or SCAPs • Have institutional knowledge or a historical perspective on the problems, past solutions, and the outcomes of those solutions • Will need to understand the process because they will be tasked with all or part of the corrective actions
Risk management personnel (to include safety officers, return-to-work coordinators, departmental claims coordinators and CEO risk management personnel)	• Have a technical understanding of the corrective action process and root cause analysis methods • May have addressed similar problems in the past or have a network of technical professionals within the department and the CEO that they can utilize • Possess an understanding of County policy, governmental regulations and industry best practices related to loss prevention, claims management and insurance services
Customers and suppliers	• It is important to understand the perspective of your external stakeholders • Some corrective actions may affect suppliers or the public and you may need their perspective to implement the CAP and/or SCAP

Benefits of the CAP/SCAP process

The immediate benefit of the corrective action process is correcting a known problem, including provisions to prevent recurrence. The need for a CAP's and/or SCAP scope should be proportionate to the risk (or magnitude of potential or realized loss). It is still reasonable to expect that a corrective action's benefit will exceed its original objective. This can be realized through the ripple effect of catching a potential problem further upstream, or before an event occurs in another area of the department, through benchmarking or through the simple transfer of a good practice to another department within the County.

The corrective action process pervades all other functions. It reinforces awareness of the links inherent in a good quality process. The concepts of cooperation, partnership, and community are intrinsic to corrective actions initiatives. If successfully implemented, a corrective action program can alter the internal culture of a department so that individuals are committed to the idea that everyone is accountable for quality, cost avoidance, and liability minimization.

Causal Factor Determination and Hazard Control



Benefits of a comprehensive incident/event investigation

The primary benefit of an investigation is to determine the root causes of the incident/event in order to draft a plan to prevent recurrence. However, this is not the only benefit a department can gain from conducting a thorough and professional investigation. Information is a powerful management tool. The information gathered during an investigation can be used for many purposes, which include, but are not limited to, the following:

- To satisfy legal or regulatory requirements
- To comply with Cal/OSHA Injury and Illness Prevention Program (IIPP) requirements
- To ensure hazard abatement
- To establish a process where all accident/incident investigations are reported timely and investigated as required in department procedures
- To discover basic causes and opportunities for improvement
- To reduce recurrence of similar events
- To provide documentation for claims and litigation management activity
- To provide documentation for process audit activity
- To provide means for performance measures
- To provide positive impact on other aspects of the business process (i.e., fleet safety, worker safety, property protection, training, etc.)
- To assist management in understanding the scope and nature of a problem
- To increase departmental awareness and understanding
- To build consensus and provide for buy-in of presented solutions

The investigation process

Once an event or an incident occurs and the initial response (situation abatement activity) has been conducted, the process moves into one of the least understood areas of CAP development, the incident/event investigation. The first question asked once a problem is detected is "What happened?" The answer will help you determine the nature of the nonconformance or problem. It may even provide you with enough information to execute a remedial action plan. But it is only the first step in gaining an understanding of the causes and events which lead up to the nonconformance, problem or loss event. Most people stop the investigative process after determining the answer to the initial question of "What happened?" In fact, the concept of "What happened?" may mean different things to different people. Depending on the investigator's reason to conduct the investigation and the timing of the investigation, there can be quite different reasons for "What happened?" In order to understand this phenomenon, one must understand the various people who may be involved in an investigation and their primary reason for conducting the investigation. Table 2 outlines individuals who may conduct an investigation and the reasons for their involvement.

Table 2. Potential participants in an investigation

Investigator	Reasons for Their Investigation
Supervisor	• Incident reporting and notification (workers' compensation, etc.) • Initial hazard abatement • Policy/procedure requires initial review of facts
Department safety officer	• Cal/OSHA investigation/notification • Insurance reporting • Hazard abatement and abatement follow-up/closure • Establish loss cost estimate • Senior management reporting
Senior management	• CAP and/or SCAP development • "Lessons learned" reporting and communication • Determination of the future of affected process (catastrophic loss) • Communication with the public (catastrophic loss) • Determine Board response
Claims adjuster	• Determine liability and exposure • Determine third party responsibility and subrogation potential • Establish claim cost reserves and build claim file
Legal counsel	• Determine liability and exposure • Build litigation defense • Establish confidentiality protection (if applicable)

Risk Management Inspector General	• CAP and/or SCAP development • "Lessons learned" reporting and communication • Impartial and independent review of circumstances leading to event
Law enforcement/fire department	• Criminal/civil investigation • Determination of code violations
Representatives from the press	• Fact determination for reporting purposes
Third party insurance carrier	• Determine liability and exposure for involved third party • Establish claim cost reserves and build claim file • Litigation preparation • Subrogation potential

Although there are many different reasons to investigate a problem, nonconformance, incident, or event, the primary reason is to gain an understanding of the causal factors which lead to the event. The remaining material in this section is intended to provide you with an understanding of causal factors and how to ascertain which factors lead to the problem, nonconformance, event, or incident.

Steps to conducting an investigation

The steps to conducting an accident investigation are outlined in Appendix A: Accident Investigation Procedure. The major points in an investigation are:

1. The first priority is to deal with the emergency and make sure all affected people receive medical attention (if needed)
2. Secure the scene (if needed)
3. Inspect the accident scene and gather necessary physical evidence (i.e., damaged equipment, photographs, etc.)
4. Interview people who may have witnessed the event
5. Interview injured people (if possible)
6. Review applicable policies, procedures and guidelines related to the factors leading to the event
7. Conduct further scientific analysis as needed (i.e., accident reconstruction, structural testing, etc.)
8. Review existing records, as necessary (i.e., training and inspection records)

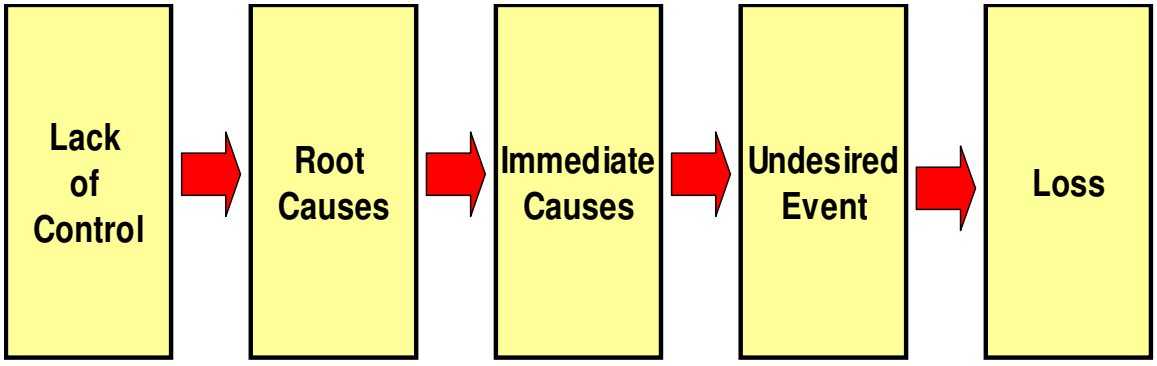
Before we proceed with the rest of the investigation material, a few terms need additional clarification:

Accident:	An undesired event that results in harm to people, damage to property, or loss to a process.
Incident/Event:	An undesired event that under slightly different circumstances could have resulted in harm to people, damage or loss to property, process or the environment. Also known as a "near miss".
Hazard:	A condition or practice with the potential for causing an accident or loss.
Loss:	The result of an accident is loss. Loss can range from harm to people and property, as well as performance interruption, quality degradation, environmental damage and profit reduction. Once the sequence has occurred, the type and degree of loss are somewhat a matter of chance. The effect may range from insignificant to catastrophic.
Undesired Event:	The event that precedes the loss; the contact that could or does cause the harm or damage to anything in the work or external environment.
Immediate Cause:	The specific act or condition which resulted in the incident; the circumstances that immediately precede the contact. Can also be called the "symptom" of the underlying problem. These are based on substandard acts and substandard conditions (example: person slipped in a puddle of oil).
Root Cause:	The specific item(s) (also called basic cause) that, when corrected, would result in long-term prevention of similar accidents, incidents or events. This could be looked at as the underlying problem which causes the symptoms or immediate causes of the problem. This is the reason the substandard acts and conditions occurred. This is based on personal factors and job/system factors (example: the oil puddle was caused by a leaking pipe which was not properly installed and maintained. The basic cause of the oil on the floor was problems with installation and maintenance).
Control:	Control is one of the four essential management functions, which are: to plan, organize, lead and control. In a loss prevention context, control of loss involves: inadequate systems, inadequate standards and inadequate compliance with standards.

The accident causation model

In putting all of the material together in the investigation process, it should be stressed that accidents, incidents/events, nonconformance and quality problems rarely ever have one cause. In fact, most events that occur are the result of the Multiple Causation Theory. In other words, the events leading to a loss have numerous immediate and root causes. The Multiple Causation Theory states for every incident/event there may be more than one contributing factor. In order to eliminate the potential for recurrence, all of the factors must be identified and corrected. In most cases, causation is complex and requires a diligent effort in determining the root causes involved. The Accident Causation Model, outlined in Figure 3, is a tool that can be used to better understand the relationship between loss, the immediate and root causes, and the reason why these causes exist.

Figure 3. The Accident Causation Model



The model explains how a loss (accident, incident/event, nonconformance, etc.) is the result of an undesired event (struck by, overexertion, chemical exposure, etc.). The undesired event is caused by an immediate cause which was initially created by a root cause. The model adds an additional dynamic to the investigative process, which is to try to determine the fundamental reasons for the creation of the root causes and tie it back to a quality failure in an established management system. In the world of quality control, all loss is analyzed back to a failure in an established management system.

Importance of determining the basic/root cause of a loss

It has already been established that the first question asked during an investigation is "What happened?" This is an important piece of information that will dictate the initial response, initial hazard abatement activity and initial reporting of the situation. This initial question will normally only determine the immediate cause of the incident. After the immediate causes are known, the next question asked should be "Why did it happen?" The determination of the root causes of nonconformance, loss, etc. is the second phase of the investigative process. This phase is the most often misunderstood piece of the investigation process. Many managers and supervisors consider the investigation concluded once the immediate causes of loss are understood. There is often no effort to understand the underlying causes of the loss. Unfortunately, if the root causes are not understood and abated, there is a high probability of recurrence, since the true causal factors were not discovered and addressed.

The proceeding section discusses the difference between immediate and root causes and the criticality of determining reasons why an event occurred.

1. An immediate cause is the circumstances that immediately precede the contact and are comprised of substandard acts and substandard conditions. These usually can be sensed or seen. The term "substandard" is used to define a situation where there is a deviation from an accepted standard or practice. The terms "substandard acts" and "substandard conditions" are used to indicate the individual acts of people as well as the accepted practices of the department.

   A substandard act is a behavior which could permit the occurrence of an accident. Examples include:

   - Operating equipment without authority
   - Failure to instruct, warn or secure
   - Operating at improper speed
   - Making safety devices inoperable
   - Failure to use safety equipment
   - Improper lifting
   - Under influence of alcohol and/or drugs
   - Using defective equipment
   - Improper loading
   - Improper placement
   - Improper position for the task
   - Servicing equipment in operation
   - Horseplay
   - Failure to follow procedures
   - Using equipment improperly

   A substandard condition is a circumstance which could permit the occurrence of an accident. Examples include:

   - Inadequate guards and barriers
   - Inadequate or improper safety equipment
   - Defective tools, equipment or materials
   - Congestion or restricted access
   - Inadequate warning systems
   - Inadequate illumination
   - Inadequate ventilation
   - Noise, radiation or chemical exposure
   - Poor housekeeping or disorder
   - Inadequate fire or explosion suppression

2. A root cause is the underlying cause of the immediate causes and is composed of personal factors and job/system factors. Personal factors include:

Factor	Example
Inadequate physical ability	• Inappropriate height, weight, size, strength, reach, etc. • Restricted range of body movement • Temporary disabilities • Permanent physical disabilities • Vision or hearing deficiency • Substance sensitivities or allergies
Inadequate mental capability	• Fears and phobias • Emotional disturbance • Mental illness • Inability to comprehend • Slow reaction time • Low learning aptitude
Physical or psychological stress	• Injury or illness • Fatigue due to task load or duration • Exposure to health hazards • Exposure to temperature extremes • Drugs • Constraint movement
Mental or psychological stress	• Emotional overload • Confusing direction • Conflicting demands
Lack of knowledge or skill	• Lack of experience and inadequate practice • Inadequate orientation • Inadequate initial training • Inadequate up-to-date training • Misunderstood directions • Inadequate initial instructions
Improper motivation	• Improper performance is rewarded • Lack of incentive • Improper attempt to save time or effort • Inadequate reinforcement of proper behavior

Job/system factors include:

Factor	Example
Inadequate leadership and/or supervision	• Unclear or conflicting reporting relationships • Unclear or conflicting assignments of responsibility • Giving inadequate policy, procedure, practice or guidelines • Inadequate instructions, orientation and/or training • Inadequate identification and evaluation of loss exposures
Inadequate engineering	• Inadequate assessment of loss exposure • Inadequate consideration of human factors/ergonomics • Inadequate standards, specifications and/or design • Inadequate monitoring of construction
Inadequate purchasing	• Inadequate specification on requisition • Inadequate research on materials • Improper storage of materials • Improper transportation of material
Inadequate maintenance (lack of preventative maintenance)	• Inadequate preventative maintenance • Inadequate reparative maintenance
Inadequate tools or equipment	• Inadequate assessment of needs and risks • Inadequate human factors/ergonomic considerations • Inadequate standards or specifications • Inadequate repair/adjustment/maintenance • Inadequate removal or replacement of unsuitable items
Inadequate work standards	• Inadequate development of standards • Inadequate communication of standards • Inadequate maintenance of standards
Wear and tear of facilities, tools or equipment	• Inadequate planning of use • Improper extension of service life • Inadequate inspection/monitoring • Improper loading or rate of use • Use by unqualified or untrained people • Use for wrong purpose
Abuse or misuse of facilities, tool or equipment	• Behavior condoned by supervision • Behavior not condoned by supervision

The following section outlines a comparison of immediate causes and examples of their underlying root causes.

Root Cause	Immediate Cause
1. Lack of knowledge (training) • Adequate safe practices or procedures are not established. They may lack clarity and/or completeness • New location or equipment startup without adequate training • Manager not fully aware of departmental/site safe practices or procedures • Employee is not trained and periodically retrained in departmental safe practices or procedures and in equipment operation and limitations	• Employee fails to follow established safe practices and procedures • Employee fails to use required equipment (i.e. safety equipment)
2. Employee placement • Employee is physically or mentally incapable of safely doing the job	• A 98 lb person handling 100 lb boxes or bags • Employee with uncorrected impaired vision operating a vehicle • Employee with previous back injury placed on heavy manual job
3. Not enforcing safe practices and procedures • Manager/supervisor not enforcing established procedures	• Employee operates a piece of equipment he/she is not authorized/trained to operate • Employee does not wear required Personal Protective Equipment
4. Engineering and/or human factors • Difficult to do the safe thing • Design not tolerant of poor operation or installation • Design fosters operational or maintenance errors • Layout requires extra effort for safe behavior • High maintenance design	• Design causes employee to not operate equipment properly • Pipe fails spraying person with hazardous chemicals • Process pipes not clearly labeled • Stairs/escalators not designed properly creating a safety hazard
5. Inadequate personal protective equipment • Safety equipment not provided where needed • Equipment provided not adequate to do the job	• Fall protection used not proper type • Acid splashes in employees face when handling hazardous chemicals
6. Inadequate inspection and maintenance programs • Documented preventative maintenance program does not exist • Inspection and maintenance records do not exist	• Defective ladders, forklifts, hand tools, etc. • Unguarded equipment • Poor housekeeping
7. Purchasing inadequate/inferior equipment • Inadequate purchasing standards • Inadequate request for proposal/purchasing process • Inadequate equipment/facility start-up reviews	• Poorly guarded equipment • Equipment fails in use • Equipment not equipped with safety features when purchased
8. Inadequate reward/punishment feedback system • Insufficient or no external reward for safety performance • Department goals and objectives do not reflect a safety sensitive culture • Disciplinary action not documented for process violations and quality nonconformance events	• Employee not properly motivated for safe behavior • Employee commits unsafe act in the presence of the supervisor
9. Inadequate/unsafe method(s) • Discover through experience that accepted method has potential for loss event	• Established policy or procedure is not adequate to prevent loss and is not modified

3. Lack of control of the established management system can be divided into three general areas:

    1. Inadequate systems (program)
    2. Inadequate standards
    3. Inadequate compliance with established standards

Management System	Example
Inadequate systems (programs)	Example systems or management programs include, but are not limited to: • Leadership and administration • Management training systems • Periodic inspection systems • Standard operating procedure development • Accident/loss investigation and analysis • General safety and loss prevention rules • Vehicle/fleet safety programs • Engineering/change management systems • Personal communications systems • Group communications systems • Procurement controls systems • Employee training systems • Property protection programs • Ergonomic systems • Preventative maintenance systems • Emergency preparedness systems • Internal audit/systems audits • Quality control systems • Special permit procedures • Human resources systems
Inadequate standards	A management standard is a specific action statement defining criteria for effective performance of management work. It clearly indicates who is responsible, what they are responsible for, and when or how often they must carry out the responsibility. These include rules, policies, procedures, safe practices and Los Angeles *County Code* requirements.
Inadequate compliance with established standards	This is the predominant reason for failure to "loss of control". Basis for this failure is total lack of measurement and evaluation of performance to established standards (i.e. management does not consistently enforce established standards).

Methods to determine causal factors of an incident/event

There are numerous methods that can be utilized to determine an incident/event's root causes. The method utilized depends on many factors and should be chosen based on the complexity of the event and the investigator's knowledge of the technique used. The methods recommended for the completion of CAPs and/or SCAPs are:

1. The 5 Why Approach
2. The Cause and Effect Diagram Approach
3. The Process Mapping Approach
4. The Human Factors Analysis Approach
5. The Management Oversight and Risk Tree Approach

A. The 5 Why Approach

By repeatedly asking the question "Why" (five is a good rule of thumb), you can peel away the layers of symptoms which can lead to the root cause of a problem. Very often the ostensible reason for a problem will lead you to another question. Although this technique is called "5 Whys," you may find that you will need to ask the question fewer or more times than five before you find the issue related to a problem. The 5 Why Approach is most useful when the problems involve human factors or interactions.

STEPS TO COMPLETE A "5 WHY" ANALYSIS

1. Write down the specific problem. Writing the issue helps you formalize the problem and describe it completely. It also helps a team focus on the same problem.
2. Ask "Why the problem happened" and write the answer down below the problem.
3. If the answer you just provided does not identify the root cause of the problem you wrote down in step 1, ask "Why" again and write that answer down.
4. Loop back to step 3 until the team is in agreement that the problem's root cause is identified. Again, this may take fewer or more times than five whys.

A 5 Why example:

Problem: The Washington Monument was disintegrating

1. Why? Use of harsh chemicals
2. Why? To clean pigeon droppings
3. Why so many pigeons? They eat spiders and there are a lot of spiders at monument
4. Why so many spiders? They eat gnats and lots of gnats at monument
5. Why so many gnats? They are attracted to the light at dusk

Solution: Turn on the lights at a later time

B. The Cause and Effect Diagram

The Cause & Effect (C&E) diagram is used to identify all of the contributing root causes likely to be causing a problem. This methodology can be used on any type of problem, and can be tailored by the user to fit the circumstances.

The C&E diagram is used to explore the potential and real causes (or inputs) that result in a single effect (or output). Causes are arranged according to their level of importance or detail, resulting in a depiction of relationships and hierarchy of events. This can help you search for root causes, identify areas where there may be problems, and compare the relative importance of different causes.

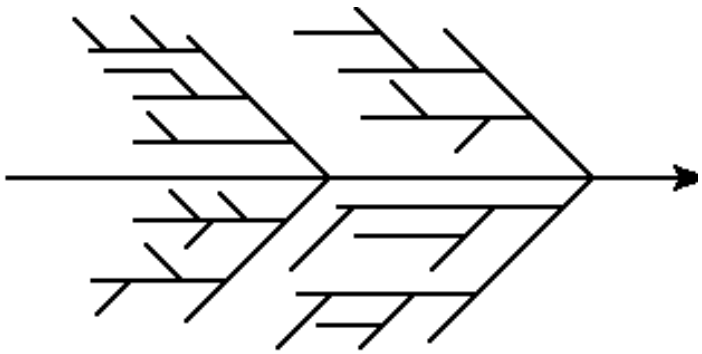
Causes in a C&E diagram are frequently arranged into four major categories. While these categories can be anything, you will often see:

- manpower, methods, materials, and machinery (use for manufacturing)
- equipment, policies, procedures, and people (use for administration).

These guidelines can be helpful but should not be used if they limit the diagram or are inappropriate. The categories you use should suit your needs. The major purpose of the C&E diagram is to act as a first step in problem solving by generating a comprehensive list of possible causes. It can lead to immediate identification of root causes and point to the potential remedial actions or, failing this, it may indicate the best potential areas for further exploration and analysis. At a minimum, preparing a C&E diagram will lead to greater understanding of the problem.

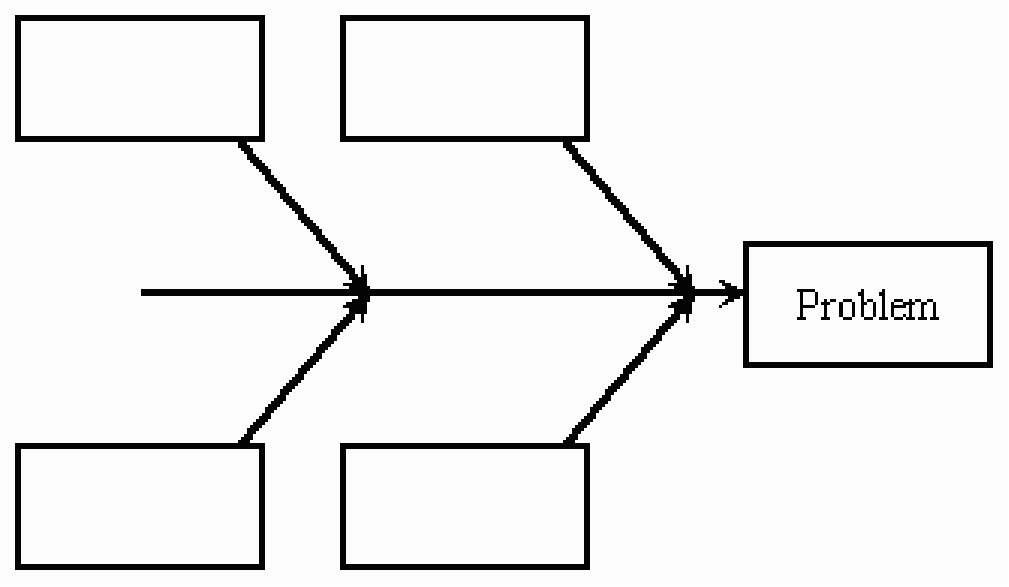
The C&E diagram is also known as the fishbone diagram because it was drawn to resemble the skeleton of a fish, with the main causal categories drawn as "bones" attached to the spine of the fish, as shown below.

Figure 4. C&E (Fishbone) Diagram



STEPS IN CONSTRUCTING A CAUSE AND EFFECT DIAGRAM:

1. Prepare a flip chart or an overhead transparency of the following template:



2. Write the issue (problem or process condition) on the right side of the C&E diagram.
3. Identify the major cause categories and write them in the four boxes on the C&E diagram. You may summarize causes under categories such as:

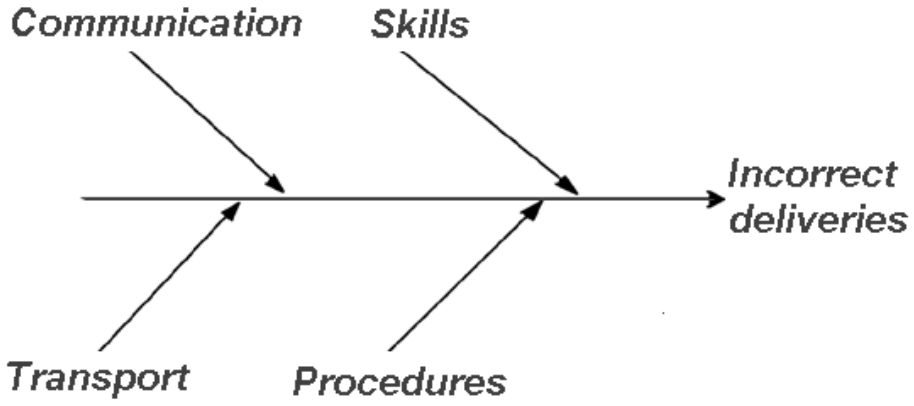
   - Manpower, Methods, Materials, Machines
   - Places, Procedures, People, Policies
   - Surroundings, Suppliers, System, Skills

4. Brainstorm potential causes of the problem. As possible causes are provided, decide as a group where to place them on the C&E diagram. It is acceptable to list a possible cause under more than one major cause category.
5. Review each major cause category. Circle the most likely causes on the diagram.
6. Review the causes that are circled and ask "Why is this a cause?" Asking "why" will help get to the root cause of the problem.
7. Reach an agreement on the most probable cause(s).

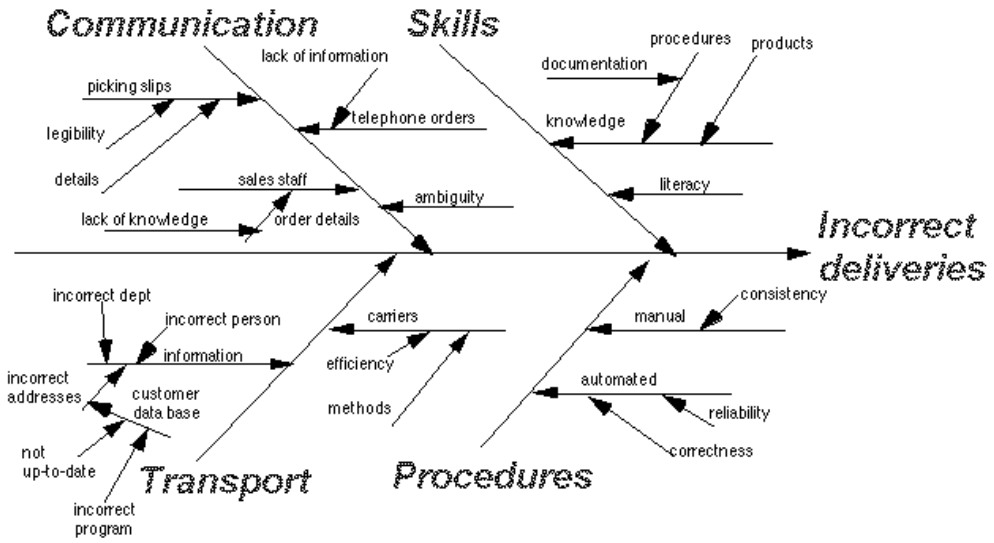
Another method to construct a C & E diagram is to look at the model as a three-step process.

1. Write down the effect to be investigated and draw the "backbone" arrow to it. In the example shown below the effect is "Incorrect deliveries".

2. Identify all the broad areas of inquiry in which the causes of the effect being investigated may lie. For incorrect deliveries the diagram is reflected below. For manufacturing processes, the broad areas of inquiry which are most often used are Materials (raw materials), Equipment (machines and tools), Workers (methods of work), and Inspection (measuring method).



3. This step requires the greatest amount of work and imagination because it requires you (or you and your team) to write in all the detailed possible causes in each of the broad areas of inquiry. Each cause identified should be fully explored for further more specific causes which, in turn, contribute to them. You continue this process of branching off into more and more directions until every possible cause has been identified. The final result will represent a sort of a 'mind dump' of all the factors relating to the effect being explored and the relationships between them.



Most of the value of a C&E diagram lies in the process used to produce them. This process leads to ideas and insights into the problem which you would not otherwise have had, and which will give you leads for further investigation or for experimenting with possible solutions. When developed by a team, the C&E diagram becomes a sort of "shared conceptual space" in which the problem is examined in common by all team members with the results that

- possibilities will be uncovered which would otherwise have remained hidden
- all team members will benefit from each other's contribution and develop a common understanding of the problem

Since it takes some time to get to the heart of most problems, the C&E diagram can also be used as a working document which is changed as new data is collected and different solutions tried. A good C&E diagram is one which explores all possibilities so it is likely to be large and complex-looking as twig after twig sprouts for each new related idea noted. Be suspicious of C&E diagrams with few factors, or which are neat and well ordered. These may reflect a lack of knowledge of the situation, or show the effort to draw the diagram was not creative and exhaustive enough.

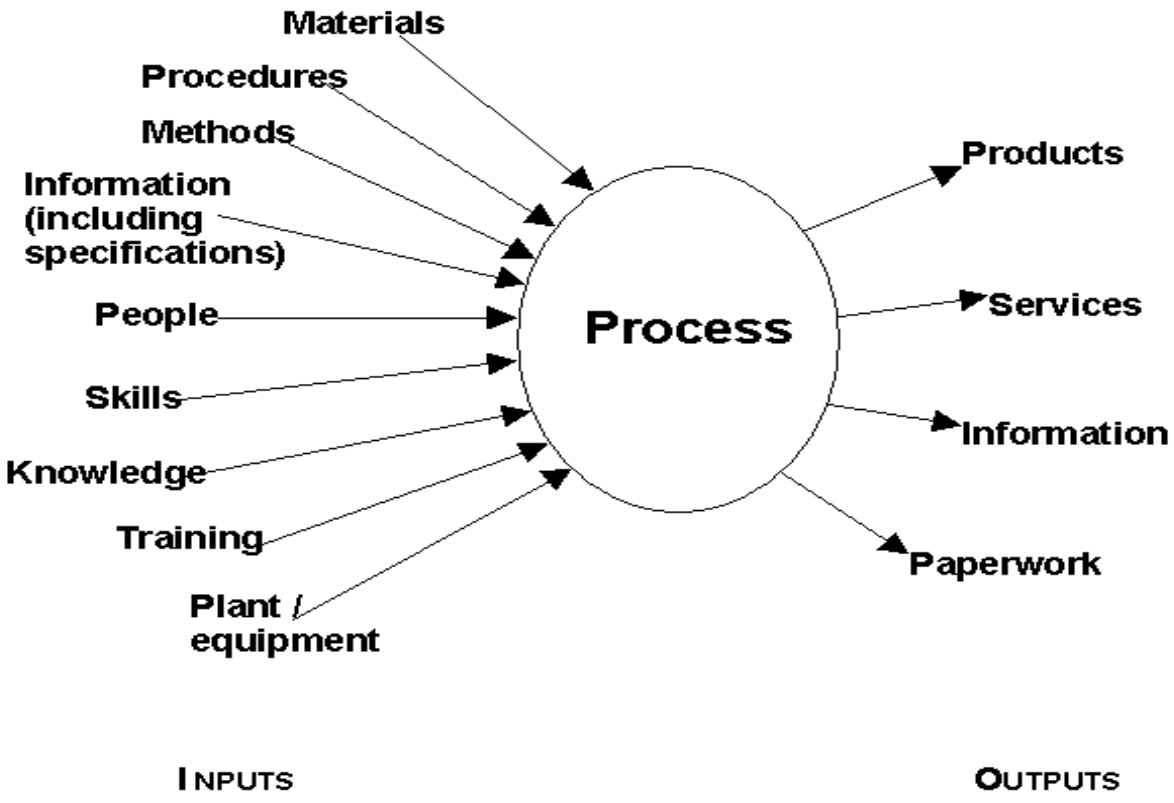
C. Process Mapping

A process map is considered to be a visual aid for picturing work processes which show how inputs, outputs and tasks are linked. Process maps, as well as prompting new thinking, are also one of the most effective ways of gaining an understanding of existing processes by drawing them onto a map.

There are two advantages and three disadvantages to the Process Mapping Approach for root cause analysis. The advantages are: (1) They are deemed to be usable, insofar as they give a clearer explanation of a process than words ("a picture paints a thousand words"); and, (2) The mere fact that individuals are working on maps means a great understanding is gained of the tasks and problems. The disadvantages are: (1) Process maps can prove to be too distracting; (2) Process maps can also take on a life of their own and lose relevance to those working on the process; and, (3) It is also suggested the maps do not always make good means of communications between layers of management.

Prior to discussing process mapping, it is important to understand what a process is. A process is defined as being a "continuous and regular action or succession of actions, taking place or carried on in a definite manner, and leading to the accomplishment of some result; a continuous operation or series of operations". Another definition is a description of a process in its simplest form, as being "a combination of inputs, actions and outputs."

Figure 5. Process Map



STEPS TO COMPLETE A PROCESS MAP

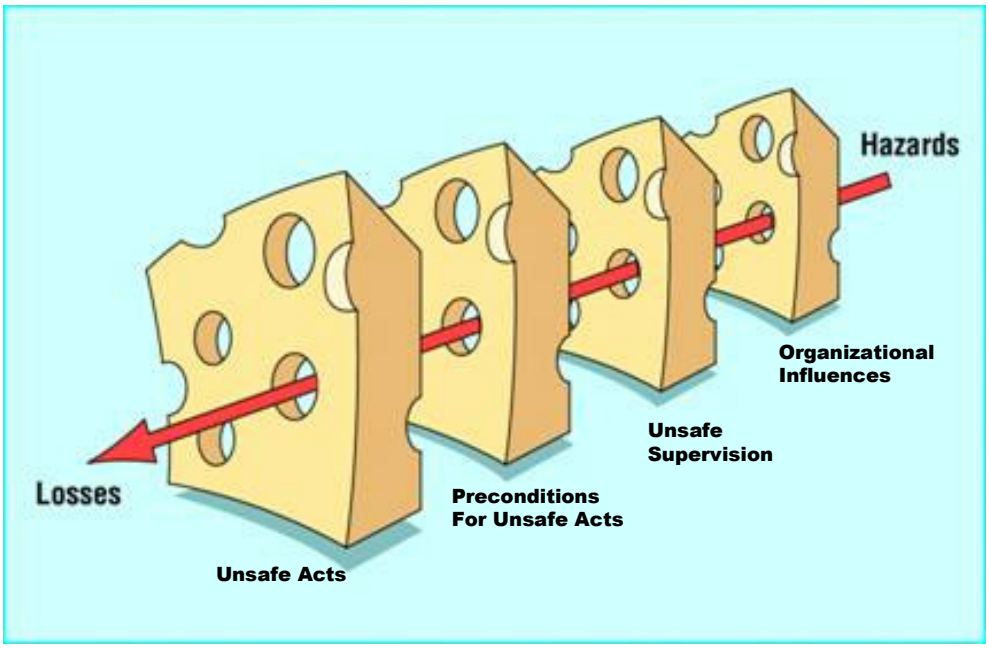
1. List all process inputs
2. List all process outputs
3. Map inputs to outputs
4. Determine which inputs lead to the loss
5. List all steps or tasks included in the identified inputs
6. Determine which actions lead to the input, which lead to the loss.

D. Human Factors Analysis

Human Factors Analysis (HFA) was developed in response to a trend that showed some form of human error, at various levels, as a primary causal factor in 80 percent of all accidents. HFA identifies the human causes of an accident and provides a tool to not only assist in the investigation process, but to target training and prevention efforts.

HFA looks at four levels of human failure. These levels include unsafe acts (operator error), preconditions for unsafe acts (such as fatigue and inadequate communication), unsafe supervision (such as pairing inexperienced aviators for a difficult mission), and organizational influences (such as lack of flight time because of budget constraints). Human factors are environmental, organizational and job factors, as well as human indiviual characteristics, that influence behaviors at work. This method identifies such factors, how they impact safety and how they need to be changed in order to prevent further incidents.

Figure 6. HFA "Swiss Cheese" Model



STEPS TO CONDUCT A HUMAN FACTORS ANALYSIS

1. Conduct a comprehensive accident/incident investigation
2. Compare the basic causes identified to the four criteria in the Human Factors Analysis model
3. Determine the root causes

HFA is the first step in the risk management process: Identify the human-factor problems. The next step is to implement interventions at organizational levels to reduce the number of mishaps, based on the data gathered by HFA.

E. Management Oversight and Risk Tree

Due to the complexity of the Management Oversight and Risk Tree (MORT) process, the following material is provided as an overview. Specialized training is needed to successfully complete a MORT analysis.

MORT is an investigative tool which analyzes the many factors contributing to an accident. It accomplishes this by means of identification of unwanted or potentially hazardous energy sources, along with consideration of the adequacy of the controls and barriers on these energy sources. The analysis proceeds through a chain of cause and effect, examining the sources of energy flow, controls upon such energy flows, and barriers between these energy flows and vulnerable people or objects. The basic tool is the MORT Chart, which can be used by an analyst to trace the chain of causality linking the accident and its contributing factors.

MORT assumes an accident has a number of interrelated causes. The accident occurs because of a lack of adequate barriers or controls upon the unwanted energy transfer associated with the undesired occurrence. Accidents are usually preceded by initiating sequences consisting of planning errors and operational errors which result in failures to adjust to changes in human factors or environmental conditions. The failure to adjust satisfactorily leads directly to unsafe conditions and unsafe acts that arise out of the risk associated with that activity. The unsafe conditions and unsafe acts, in turn, provoke the flow of unwanted energy.

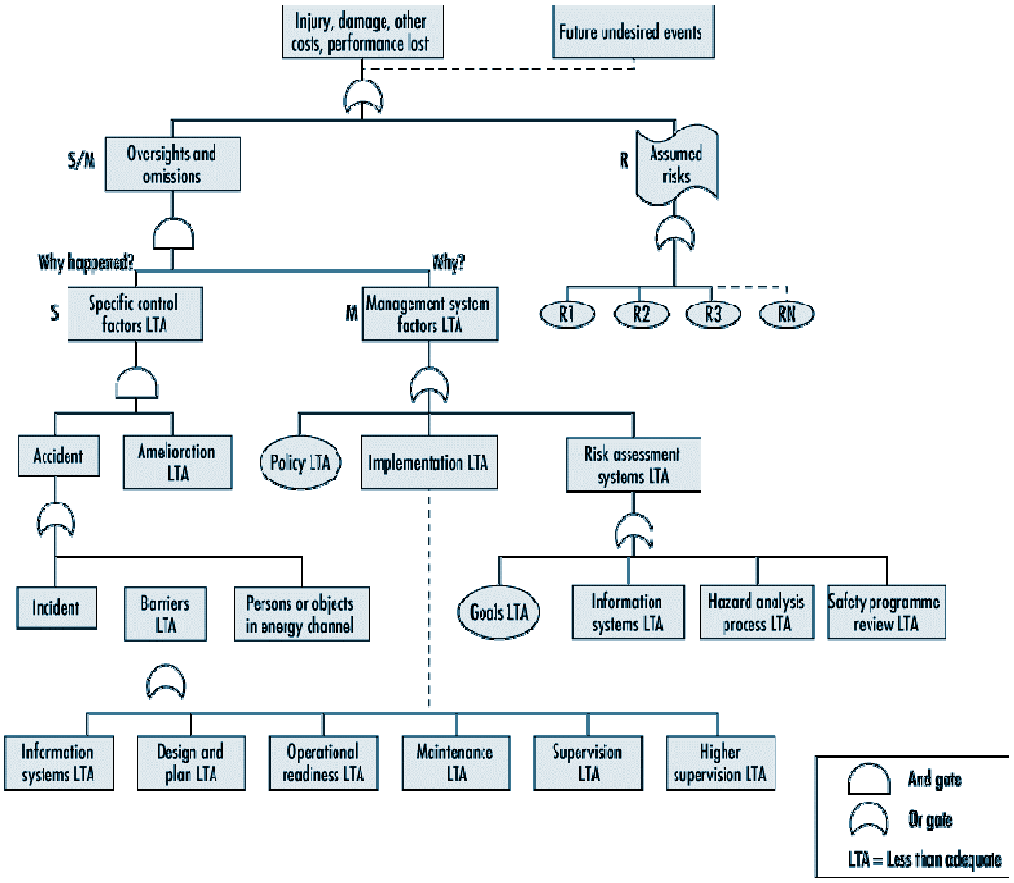
MORT assumes that in any accident situation, contributors to the accident can be identified as either assumed risks which management has made a conscious decision to accept, or management oversights or omissions, or both. The emphasis on management as the key factor is because management is, by definition, responsible for the activities and posture of the department. Since an accident is an event or condition not desired by management, it represents either a decision that the risk of the potential for harm is acceptably small, or a misunderstanding on the part of management of what the magnitude of the risk

is, or that the risk exists at all. In either case, the occurrence of an accident is by its nature a failure of management effectiveness.

Management oversights or omissions resulting in an accident are further divided into specific control factors which are or were inadequate, and also inadequate management system factors which allow or allowed the specific control factors to exist. Both are needed for management to overlook a hazardous condition which could result in an accident.

Finally, the accident itself requires the three factors of energy, inadequate controls or barriers, and vulnerable people or objects, to occur. The events or conditions in the causal chain are identified and arranged in a graphic logic tree which shows the causal relationship between them. Many causes are interrelated in a way which makes it impossible to establish a rigid hierarchy of cause and effect. In other words, there is often more than a single chain of cause and effect between any given basic event and the undesired top event which constitutes the accident.

Figure 7. Sample MORT Diagram



Steps to use the mort diagram

MORT is used as a practical tool in accident investigations and in evaluations of existing safety programs. The top event of the tree in Figure 7 represents the losses (experienced or potential) due to an accident. Below this top event are three main branches: specific oversights and omissions (S), management oversights and omissions (M) and assumed risks (R). The *R-branch* consists of assumed risks, which are events and conditions that are known to management and have been evaluated and accepted at the proper management level. Other events and conditions that are revealed through the evaluations following the S and M branches are denoted as "less than adequate".

The *S-branch* focuses on the events and conditions of the actual or potential occurrence. (In general, time is shown as one reads from left to right, and the sequence of causes is shown as one reads from bottom to top.) An event is denoted an accident when a target (a person or object) is exposed to an uncontrolled transfer of energy and sustains damage. In the *S-branch* of MORT, accidents are prevented through barriers. There are three basic types of barriers: (1) barriers that surround and confine the energy source (the hazard), (2) barriers that protect the target, and (3) barriers that separate the hazard and the target physically in time or space. These different types of barriers are found in the development of the branches below the accidental event. Amelioration relates to the actions taken after the accident to limit the losses. At the next level of the *S-branch*, factors are recognized which relate to the different phases of the life cycle of an industrial system. These are the project phase (design and plan), start up (operational readiness) and operation (supervision and maintenance).

The *M-branch* supports a process in which specific findings from an accident investigation or safety program evaluation are made more general. Events and conditions of the *S-branch* thus often have their counterparts in the *M-branch*. When engaged with the system at the *M-branch*, the analyst's thinking is expanded to the total management system. Thus, any recommendations will affect many other possible accident scenarios as well. The most important safety management functions can be found in the *M-branch*: the setting of policy, implementation and follow-up. When the branches of the MORT diagram are elaborated in detail, there are elements from such different fields as risk analysis, human factors analysis, safety information systems and organizational analysis. In total, about 1,500 basic events are covered by the MORT diagram.

Additional resources that can be used in the investigative process

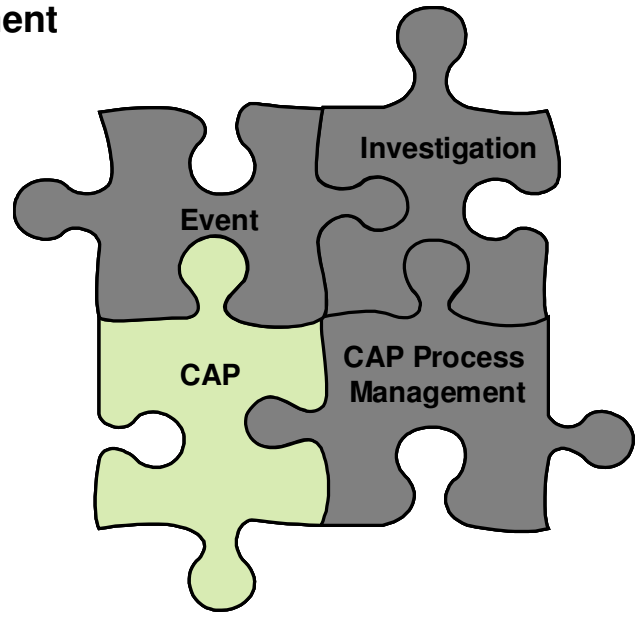
In order to complete a comprehensive investigation and root cause determination additional resources or analytical approaches may be needed to support the investigative process. Depending on the severity and complexity of the loss occurrence, numerous technical professionals and/or technical analyses may be needed in hazard recognition. These include, but are not limited to:

- Accident reconstruction
- Engineering design review
- Industrial hygiene assessments
- Ergonomic/human factors assessments
- Accident imaging
- New equipment/process reviews
- Medical evaluations
- Legal analysis
- Task, job or process analysis
- Inspections (property, process or procedures)
- Accident reconstruction
- CEO Loss Control and Prevention evaluations

Roundtable process

Another process that could add considerable value during the investigation is the County's roundtable process for liability-related losses. Roundtable meetings are conducted by County Counsel, Third Party Administrators (TPA) and departmental representatives to discuss litigation strategy, progress of the claims adjusting process and critical issues related to liability, exposure and accountability. These meetings are under the direction of County Counsel and are confidentiality protected. They can provide a wealth of information related to determination of root causes and potential exposures. The concept behind the roundtable meeting is to get the appropriate people in a room to discuss the situation in detail. The power of these meetings is to communicate information related to the event/loss between the key stakeholders and real time decisions can be made.

Corrective Action Plan Development



How to write a CAP and/or SCAP

Once the event or loss has occurred and the investigation has determined the root causes which lead to the occurrence, the next stage in the process is the development of the actual CAP and/or SCAP. There are numerous methods to gather the required information and generate the CAP and/or SCAP for review and approval. The methods discussed in this *User's Guide* are presented as a recommendation only. If your department has a standard CAP and/or SCAP process, this material is provided for comparison purposes only.

The intent of the investigation is to determine the root causes of the occurrence and the underlying management system issues that lead to the existence of the root causes. As discussed, this process involves the collection of relevant facts, the review and analysis of the information collected and the determination of what specifically caused the occurrence. The investigative process may have been complex, time consuming and difficult, but it is only half of the journey. Now that we know what we need to fix, we have to implement a fix that will, in fact, address the root causes and underlying management system issues and be sustainable. This is often far easier said than done. The CAP and/or SCAP is the tool we use to accomplish the tasks of resolving the underlying problems on a permanent basis. Like the investigative process, the CAP and/or SCAP development process may involve numerous resources, be complex and time consuming. Often the more catastrophic the loss is, the more complex the solution that is needed. The intent of the CAP and/or SCAP is hazard control, mitigation or abatement. We use controls, such as administrative, engineering, work methods or personal protective equipment options, to address the root causes identified in the investigative process.

Elements of hazard control

As previously stated, the intent of the CAP and/or SCAP is hazard control, mitigation or abatement. Our investigation has identified the root causes of the loss and the focus now is implementing corrective actions that will control, mitigate or abate the causes of the loss. Loss control is a science; it is taught in engineering programs at universities around the country. It involves the review of the situation and the understanding of the engineering, mechanics, procedures and processes involved. In many cases the CAP process breaks down at this point in the CAP life cycle. We spend time and energy trying to understand what happened (normally for litigation defense, etc.) and miss a golden opportunity because the fix we state in our corrective action is either not doable or incorrect. The problem with this approach is we do not often realize the corrective action steps are inadequate until the event recurs and we are inevitably back at square one. The hazard control options should never be developed in a vacuum; they should be reviewed with affected managers and supervisors, affected employees and the CEO Loss Control and Prevention staff or department safety staff. All of the corrective action steps must be evaluated for effectiveness and sustainability.

There are four primary methods of hazard control:

Type of Control	Example
Administrative	• Training • Disciplinary action • Inspection and maintenance programs • Job rotation • Purchasing controls • Signs and warning labels
Engineering	• Facility design • Facility redesign • Installing guarding, railings, etc. • Establish design criteria • Process modification
Work methods	• Modify existing polices, procedures and/or work instructions • Create new policies, procedures and/or work instructions
Personal protective equipment	• Fall protection • Seat belts • Eye protection • Hearing protection • Respirators, Self Contained Breathing Apparatus, etc. • Gloves and other protective clothing • Helmets, etc.

The Ten Point CAP Development Model

The following section outlines the "Ten Point CAP Development Model" which includes ten elements to consider when drafting a comprehensive CAP. The model includes various elements that will help the CAP and/or SCAP author categorize the information to be used to develop the final CAP and/or SCAP draft. The Ten Point CAP Development Model is outlined in Table 4.

Table 4. The Ten Point CAP Development Model

Model Element	Description
Describe incident/event and overview of the plan	The first part of the model provides a summary of what your CAP will address. It is your CAP's mission statement. It should be a brief statement that demonstrates how you will address the nonconformity (root causes) and any other benefits that will be realized by the implementation of the CAP.
Describe personnel required for implementation	A list of personnel involved with the development and implementation of the CAP. They should be listed by function and name. Their roles and responsibilities should also be explained (i.e. who is responsible for what aspects of the CAP).
Describe time required to implement	It is important to list both the time required to complete individual tasks or actions steps, as well as a completion time for the CAP and a time frame for process evaluation and verification. In addition to outlining the time requirements for the CAP, the time requirements for implementation the CAP should be estimated so the cost can be accurately factored into the decision-making process (i.e. cost to train staff, cost to rewrite or develop processes, cost of technical experts time and/or cost to conduct design or engineering reviews).
Describe training required	Although this seems self explanatory, a thorough analysis of the training needs will need to be conducted in order to develop a comprehensive CAP. One must look at who will be trained, who will conduct the training, where it will be conducted, what training material will be needed, the cost of the training, etc.
Describe equipment needed	An analysis will need to be conducted to determine what equipment will be needed to implement the approved CAP. Equipment can range from ergonomic chairs to new vehicles and aircraft. The equipment needs can be simple and inexpensive or complex and costly depending on the scope of the CAP. Issues to consider are: "Does the equipment cost affect the budget?"; "Are we going to have to train people to use it?"; and "Can the CAP be implemented without it?"
Describe documents that will need to be revised	This is probably the most overlooked aspect of CAP development. Processes are improved, corrections are made and new equipment is acquired, but the related documents (policies, procedures, training manuals, etc.) are not updated. A thorough document analysis will need to be conducted to assure applicable work instructions, flow chart, engineering drawings, contracts, customer documents, policies and procedures are updated and those changes are communicated.

Describe impact on business process or project plans	A review of how the CAP will impact existing processes will need to be conducted. Consider the following activities that may affect the production or work schedule: rework of defective product/activity; sending critical personnel out for training; affect to process while installing or maintaining equipment (i.e. elevators, etc.). If the CAP affects projects in the planning stage, impact on engineering designs and processes need to be reviewed.
Describe customer, staff, or departmental input or approval needed	In the County, many department activities are interrelated. A review of the necessary approval or input from customers, business partners and support departments (i.e. budget and finance or engineering) will need to be considered.
Describe who is needed to authorize the actions/CAP	Often the individual assigned responsibility for development of the CAP does not have the authority to implement every aspect of the CAP. Authorization becomes an issue when the resources needed exceed the process owner's (or CAP author's) scope of responsibility. Examples include: training that involves individuals from other departments; capital expenditures; changes to processes or procedures that fall under regulatory scrutiny; production modifications that will affect quality and timeliness of services delivered. In addition, department managers are often required to review and sign off on CAPs submitted to the Board.
Describe when the plan will be fully implemented and how the plan implementation effectiveness will be measured	Articulating the completion date is essential to plan success. In addition, it is also important to illustrate what the situation will look like once the CAP is fully implemented. Questions related to success and failure of the CAP will need to be understood prior to roll out of the CAP, so the process can be monitored and necessary changes can be incorporated into the plan to assure success.

The Ten Point CAP Development Model is not the completed CAP and/or SCAP and should not be mistaken for the actual CAP and/or SCAP document. The model is presented as a tool to assist the department in asking the appropriate questions and conducting the necessary impact analysis to assure the final CAP draft is written in a manner that will facilitate a successful implementation of the CAP and the eventual correction or elimination of the root causes of the loss. The Ten Point CAP Development Model worksheet is included in Appendix B: CAP Forms.

SCAP development: completing the SCAP form

Effective November 1, 2007, the completion of the SCAP form (Summary Corrective Action Plan) will be mandatory for all settlements in excess of $20,000 ($100,000 for medical malpractice). The SCAP will be required for all settlement packages going to the Claims Board for settlements within the Claims Board authority. If a settlement exceeds $100,000, both the SCAP and CAP will be required in the settlement documents submitted to the Board order to obtain approval for the settlement.

A sample SCAP form is provided in Appendix B: CAP Forms. This form mandatory for all settlements in excess of $20,000 ($100,000 for medical malpractice). The form is to be used as provided (no modifications without CEO approval) in order to ensure

consistency for Board review and approval. If the SCAP is not completed correctly the settlement will not be approved.

CAP development: completing the CAP form

Once the CAP research has been conducted and all relevant facts are understood, the next phase is the actual generation of the CAP. The actual CAP's size and scope depends on many factors, including seriousness of the loss/event, complexity of the root causes, political ramifications, impact the loss had on department/community, etc. There are many issues that drive the scope of the CAP and the determination of how lengthy and complex the CAP needs to be is a decision made by the affected department's management team. As we have illustrated, the investigation and CAP development activity can be complicated and time consuming; we need to make sure the activity that goes into the development of the CAP is warranted and reflects a thorough analysis of all involved factors. Unfortunately there is no "rule of thumb" to answer this question. It is a complex management decision that will need to be researched and understood prior to deciding on the effort involved. The SCAP is intended to provide an executive summary related to the content of the actual CAP. For liability claim settlements in excess of $20,000 ($100,000 for medical malpractice) the SCAP is required to be submitted to the Claims Board.

The CAP should be written using a standard and uniform departmental format. The use of a standard form with standard terminology has a number of positive departmental impacts, such as:

1. The executive management team can focus on the criteria of the CAP, not the form and terms for each CAP submitted for approval.
2. There is less training needed for affected managers and supervisors on how to complete the CAP.
3. If confidentiality is necessary, County Counsel has familiarity with the document, which will speed up their review process.
4. During the CAP evaluation and follow-up process a standard approach is easier to consistently evaluate.
5. A standard form and terminology assist affected employees to understand the CAP and the impact to them.

A sample CAP form is provided in Appendix B: CAP Forms. This form is intended to be used as a guide only. If your department has an existing form, it should be reviewed and compared to the sample provided. The appropriate departmental CAP form is at the discretion of your department manager. Although the forms may differ slightly from department to department there are a number of elements of the form that should be consistent. Items to include in a CAP form are:

1. General Information

- Date CAP completed
- Department
- Departmental contact (phone, address and e-mail)
- Nature of incident/event
- Date of incident/event
- Incident/event root causes
- Description of incident/event
- Incident/event contact person
- Claim adjuster – phone, address and e-mail (if applicable)
- Attorney – phone, address and e-mail (if applicable)
- Root cause analysis tool used
- Concurrence/review signatures

2. Corrective Action Steps

This information should be provided for each corrective action listed. Each root cause identified should have a corresponding corrective action step (in some cases more than one).

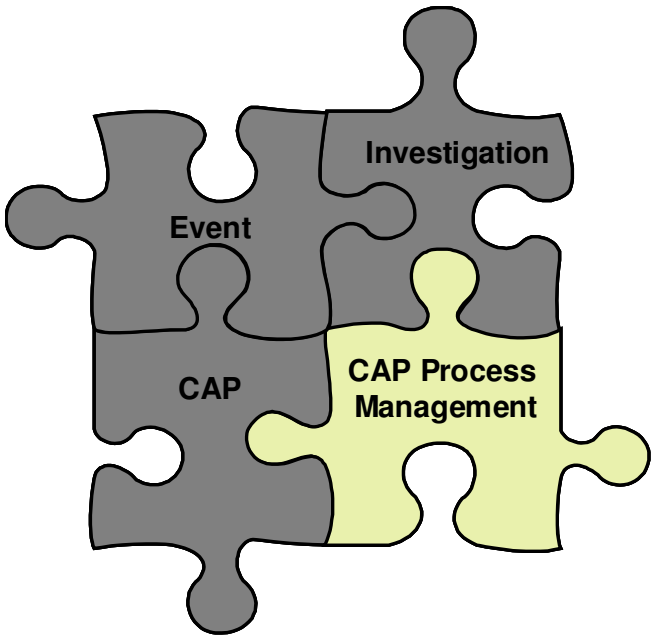
- Task number
- Task name
- System issue
- Schedule start date
- Scheduled completion date
- Responsible person
- Task description

The completed CAP form should be reviewed by affected personnel, checked for grammar, etc., and forwarded to senior management for review and approval.

CAP and SCAP confidentiality

In the event the CAP is determined confidential, the draft CAP will need to be forwarded to County Counsel for review. If the determination is made that the CAP is confidential (the SCAP will be confidential as well), all documentation and related material may need to be protected. It is very important that County Counsel is involved in the initial phase of development to ensure the material is confidentiality protected. If there are any questions related to confidentiality (i.e. should this document or CAP/SCAP be protected?), County Counsel should be consulted immediately. In addition, if a CAP/SCAP is determined to be confidential, all affected employees who are participating in the development need to be trained on the County's confidentiality processes to ensure the confidentiality is not breached. The potential downside to losing confidentiality protection during litigation may be catastrophic; the protection provided by the attorney-client relationship is very important and should be stressed during the entire CAP/SCAP development and implementation process.

Corrective Action Plan Process



As outlined in the previous sections, the CAP process consists of ten elements. All ten elements need to be implemented in order to have an effective CAP program.

1. Criteria for initiating a CAP and/or SCAP
2. Root cause analysis
3. Obtaining input from relevant sources
4. Communication
5. Developing a thorough plan
6. Timely response
7. Implementation
8. Documentation
9. Record retention
10. Verification and follow-up

We have discussed elements one through five in the preceding sections. Elements six through ten are included in the process of managing the CAP process. Once the event has occurred, the investigation has been conducted and the CAP and/or SCAP developed, many managers consider the process complete. This is an inaccurate assumption and one that often leads to event recurrence. In order to be effective, all ten elements of the CAP process must be in place.

Timely response

The concept of "timely response" permeates the entire CAP life cycle. Established standards relate to:

1. When to notify management;
2. When to conduct the initial investigation;
3. When to notify County Counsel related to potential liability and confidentiality;
4. When to draft the initial CAP and/or SCAP;
5. When to implement the CAP and/or SCAP;
6. When to initiate implementation follow-up activity; and
7. When to initiate CAP and/or SCAP closure and verification activity, and when it must be conducted, communicated and enforced.

The potential for missed opportunity, inefficient hazard abatement and possible breach of confidentiality protection makes it imperative that the necessary CAP related timeframes are understood and in place.

CAP implementation

The implementation scope and schedule for an approved CAP and/or SCAP is another critical element in a comprehensive CAP program. The scope of the CAP has a considerable effect on the roll-out and eventual success of the CAP. The scope needs to be clearly defined and understood by both the CAP author and the approver. The scope and schedule covers issues such as:

1. Population affected by the scope from a macro level (i.e. employees, vendors, other County departments, the public) and a micro level (i.e. specific employee classifications, departments, units, etc.);
2. Processes, procedures and standards impacted
3. Training requirements impacted
4. Operational and quality impacted
5. Equipment and facilities impacted
6. Budget and resources needed to implement
7. Union or contractual issues impacted
8. Timeframes needed for implementation of specific CAP tasks, actions and/or milestones
9. Approvals (i.e. Board funding and staffing), possible *County Code* changes/legal implications, and budget demands
10. Risk and severity concerns related to possible implementation schedule
11. Hazard mitigation and remedial action impacts
12. Liability and litigation impacts

This represents a partial list, but it illustrates the importance of gaining an understanding of the CAP and/or SCAP scope prior to implementation. The scope and the implementation schedule need to be drafted, analyzed and thoroughly reviewed prior to implementation. Once the scope is understood, the implementation must be conducted as outlined. Each action step must be implemented as planned and a quality control

process must be established to assure the CAP steps are implemented on time and within the affected scope. Implementation starts with the initial CAP rollout and ends with closure verification. Many managers consider the CAP implemented once one or two of the action steps are started. This is not an accurate assumption. The CAP is implemented once all steps are started. Anything short of complete implementation is a partial implementation. All CAP and/or SCAP action steps need to be in place in order to have an effective implementation.

Documentation and record retention

Another critical element of an effective CAP process involves the documentation of the numerous elements of the CAP process. In order to verify that the initial investigation, root cause analysis and CAP and/or SCAP were implemented, various records (documentation) will need to be evaluated. In addition, in order to ensure the effectiveness of the CAP steps, provide County Counsel information needed for litigation, and provide information to risk management and loss control and prevention personnel, comprehensive documentation will need to exist. The amount of information retained is dependent upon a number of factors, such as CAP complexity, pending litigation, nature of CAP and the scope of CAP. There are no standardized rules related to documentation and each CAP's documentation requirements must be evaluated on a case-by-case basis.

In the event a CAP and/or SCAP is developed as a result of a liability or workers' compensation claim and/or lawsuit, all documentation related to the investigation, implementation and effectiveness of the CAP will need to be maintained. In the event the CAP and/or SCAP is designated confidential, the documentation will need to be filed in accordance to standards established by County Counsel to protect the confidentiality of the documents. If there are any questions related to confidentiality, County Counsel should be contacted immediately. This discussion must occur as soon as the claim or lawsuit is received by the department (or sooner if possible) with County Counsel determining the appropriate method to retain the CAP-related records. If a department policy exists related to documentation retention and confidentiality, it needs to be adhered to at all times. If, as a result of event notification or during the initial supervisory investigation, there is any doubt related to confidentiality, contact County Counsel before any documentation is generated by the department.

Corrective action implementation follow-up

Follow-up is often a misunderstood concept. In many departments, follow-up activities are limited to cursory confirmation that the CAP and/or SCAP has been implemented. In other departments, follow-up does not venture beyond checking to see if the course of action has been formulated. Corrective action follow-up requires the same vigilance, uniformity, verification, evidence and record maintenance as the other functions within the CAP process. It is another process, complete with requirements, plans, documentation and deliverables. It is essential to verify the CAP and/or SCAP has

been implemented and the CAP was effective in eliminating the root causes of the event/loss. Records of corrective action provide management with valuable information about the status of problems, resource requirements and training issues. At the very least, these records prevent the repetition of failed projects by providing historical records of action plans that did not work.

There are three unique verifications that must occur during the follow-up process:

1. **Verify that the root cause analysis has been conducted and a viable plan has been formulated.**
2. **Verify the plan has been implemented.**
3. **Validate the plan's effectiveness.**

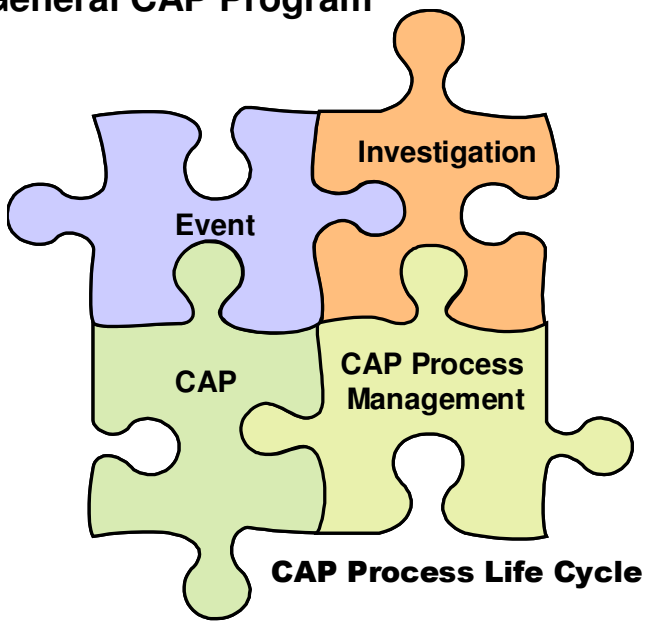
The follow-up does not need to be extremely complicated and cumbersome. Follow-up simply requires a review of the evidence that substantiates the plan's implementation and the fact it has worked. A sample follow up form is included in Appendix B: CAP Forms. One must be diligent when conducting the follow-up evaluation. The review must be based on actual facts, evidence and documentation.

Follow-up example: Operator error/train the operator

The root cause was determined to be "lack of training." The follow-up evaluation involved review of the training records to determine the individual involved was trained. These records are most likely located in the human resources department or the supervisor's office. At this point, one could verify the training occurred. However a thorough follow-up evaluation digs much deeper. Was this the only employee affected or is broader training needed? Was it conducted and does that documentation exist? Did they train 100% of the affected employees, or 25%? Is there any evidence that the training worked (i.e. was it effective)? Have similar events occurred since the corrective action step was implemented? Has the problem been abated in the affected unit or the department as a whole?

Each corrective action step must be evaluated for implementation and effectiveness. One evaluation is to verify that a specific action has been completed; another entirely different evaluation is to determine if the action was effective. The impulse to prematurely close out a CAP as complete is often the result of the reviewer's altruistic wish to acknowledge the supervisor or manager's efforts and good intentions. They did what was requested; they came up with a solution. The individual chosen to evaluate CAP effectiveness must review both implementation and effectiveness. In addition, it should be stressed that the CAP writer and follow-up evaluator is not the same person. The follow-up reviewer needs to be objective and impartial to assure a thorough follow-up has occurred.

CEO Risk Management Inspector General CAP Program



The Board created the function of the Risk Management Inspector General (RMIG) within the Department of the Auditor-Controller (AC) as defined by the Board in Section 2.10.090 of the *County Code*. The RMIG function and responsibility was transferred to the CEO in 2002, as part of the creation of County's centralized Risk Management Branch within the CEO. The RMIG was tasked to carry out the following responsibilities, which can be divided into the following four primary categories:

1. Respond to Board-ordered reviews of issues related to Risk Management.

2. Prepare analyses of selected individual lawsuits brought against the County and the critical incidents which give rise to those suits in order to identify systemic, reportable risk issues and to appraise the status and appropriateness of action plans designed to modify the factors that contributed to the creation of liability.

3. Monitor selected past and current litigation against the County and departmental policies, procedures and processes to proactively identify systemic risks.

4. Assist departments and agencies in developing timely and appropriate CAPs and review implementation of CAPs and periodically report to the Board on their status. These CAPs are required by the Board for all tort liability settlements in excess of $100,000.

In order to fulfill the responsibilities as outlined in item #4 above, the RMIG drafted the *Risk Management Inspector General Corrective Action Plan Initiative* (CAP initiative) in May 2005. The CAP initiative outlined the RMIG CAP responsibilities and described the critical elements for a Countywide CAP management plan.

RMIG CAP and SCAP responsibilities

1. Provide routine guidance and assistance to departments in all areas of CAP and/or SCAP management.
2. Identify issues from various data streams.
3. Identify and eliminate duplicate actions.
4. Evaluate issues for escalation due to County department and/or regulatory significance.
5. Identify and disseminate lessons learned, best practices and noteworthy accomplishments.
6. Facilitate the change control process for CAP modification (action due date revision, etc.).
7. Facilitate assignment of CAP owners to unassigned issues and resolve ownership disputes.
8. Elevate significant and generic issues to appropriate levels of department management.
9. Facilitate department closure verification on selected issues.
10. Facilitate department effectiveness of closure reviews for selected corrective actions.
11. Assist in formal root cause analysis.
12. Obtain feedback from CAP program users to drive continuous improvement.
13. Audit Countywide CAP process.
14. Provide periodic reports to departmental representatives on CAP status.

Critical elements for CAP management

1. Develop baseline database of approved CAPs since July 1, 1999 and determine current state of County's corrective action process.
2. Establish a single, centralized and uniform tracking system for all CAPs.
3. Ensure departmental Risk Management Coordinator or assigned staff is directly involved in developing and implementing department-specific CAPs and/or SCAPs.
4. Prioritize issues and actions to help departments concentrate on the most important problems.

5. Provide training for all departmental staff (i.e. departmental Risk Management Coordinators) to support and provide consistency for the CAP program, to include root cause analysis and CAP/SCAP development.
6. Ensure departmental CAPs and/or SCAPs address the root causes of the loss.
7. Audit departments to ensure departmental CAPs are completed and implemented thoroughly.
8. Establish a process to ensure lessons learned, best practices utilized and noteworthy accomplishments are communicated to departments.

In order to support the Board, County employees and the citizens and visitors of the County the RMIG and CEO Loss Control and Prevention Section (CEO/LCP) provide the following CAP and/or SCAP related services:

1. Full range of loss prevention, hazard recognition and control consultation services. Consultation services include, but are not limited to, accident investigation, root cause analysis and hazard control development.
2. CAP and/or SCAP development review and development consultation.
3. Development of department-specific CAP training programs and training material, to include: Hazard recognition and control, CAP/SCAP development, and CAP effectiveness reviews.
4. Consultation in developing department-specific CAP management programs.

In addition to Countywide consultation and development activity, the RMIG provides the following services to the Board for CAPs and/or SCAP required for tort settlements:

1. Review of submitted CAPs for closure and effectiveness. This is done jointly with CEO/LCP, under the direction of the RMIG and County Counsel (to protect confidentiality).
2. Technical review, when requested, of CAPs and/or SCAPs prior to submission to the Claims Board and Contract Cities Claim Board.
3. Submission of a quarterly CAP scorecard to the County Risk Manager, outlining Countywide CAP performance measures.
4. Claim reserve notification (in excess of $20,000/$100,000 for medical malpractice) to the department.
5. Development and distribution of quarterly CAP departmental applicability report to Department Heads.

Appendix

Appendix A: Accident Investigation Procedure

Appendix B: Corrective Action Plan Forms

1. **Sample Corrective Action Plan Form**
2. **Summary Corrective Action Plan Form**
3. **Ten Point CAP Development Model Worksheet**
4. **Root Cause Analysis Form**
5. **Action Plan Development Form**
6. **Corrective Action Plan Closure Verification Form**