

## Bow Tie Diagram

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### Description:

A Bow Tie Diagram is used in risk evaluation. It gives a visual summary of plausible scenarios that could exist around a certain risk, and identifies preventive and mitigative steps to minimize the risk. This tool helps to uncover causal relationships in these high-risk and high-impact scenarios, which could cause a major disruption to your organization. The diagram takes its name from its shape, and provides a one-page visual roadmap showing causes, controls (safeguards in place to prevent causes), potential impacts to the organization, and recovery options in place to minimize the impacts.



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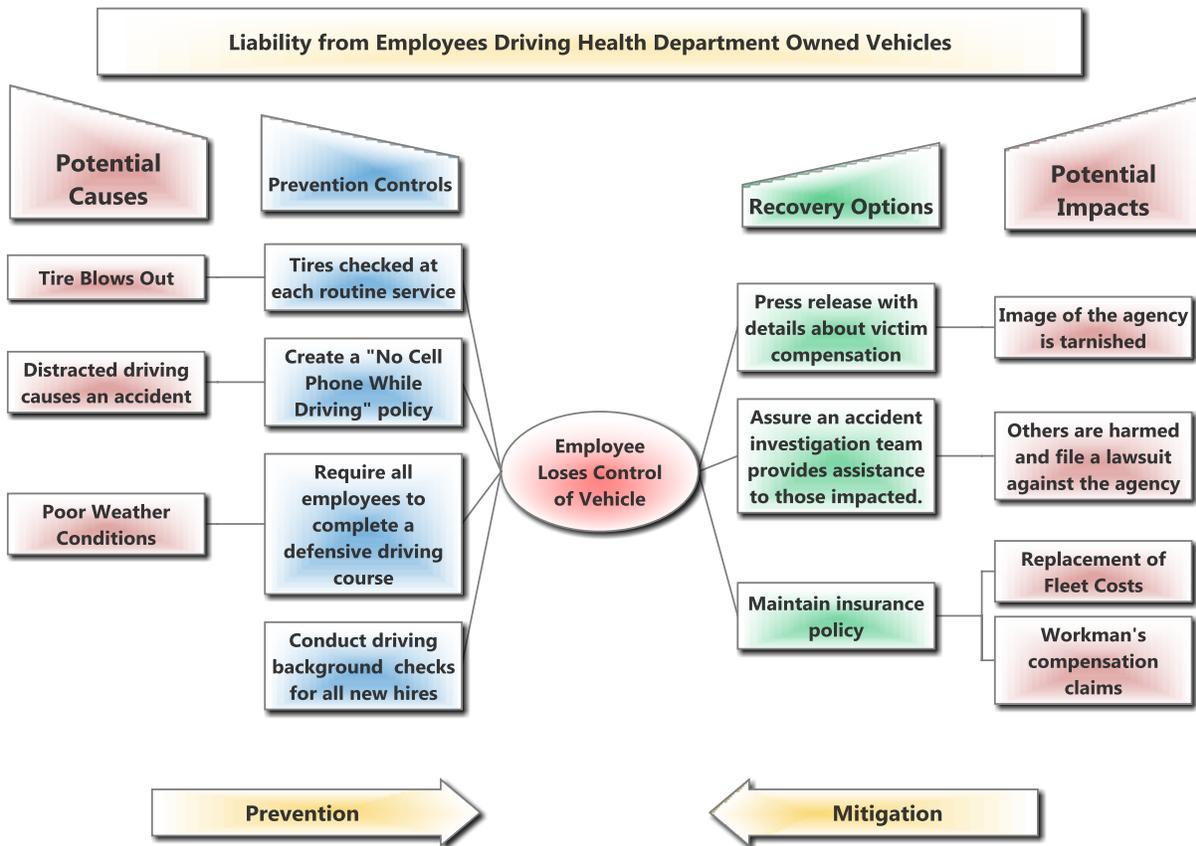
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## **When to Use:**

A Bow Tie Diagram is used to discuss an organization's high-impact scenarios around potential management disasters or when an organization needs to identify control measures to manage those high-impact scenarios.

## **Construction Steps:**

1. At the left top of a flip chart, define the high risk situation to be investigated (e.g., *"Liability From Employees Driving Health Department-Owned Vehicles"*).
2. In the center of the flip chart paper, draw an oval. Write in the major event that could cause or trigger the high risk situation to happen (e.g., *"Employee Loses Control of Vehicle"*).
3. Create the Bow Tie Diagram as shown in the example by drawing in the lines from the edges of the flip chart paper to the oval in the center. Draw in the V-shape for Prevention Controls and Recovery Options. Draw in the Boxes for Causes and Impacts.
4. Define all the potential causes of the situation being investigated (e.g., *"Tire Blows Out"*).
5. Brainstorm a list of potential impacts to the organization (e.g., *"Vehicle Hits Other Cars or People – Lawsuit Results"*).
6. List out the preventive controls in place now to prevent the situation from happening (e.g., *"Tires Checked When Vehicle Maintained every 6 Months or Tires to Be Checked by Employee before Using the Vehicle"* or *"Employees Using Health Department Vehicles Take a Defensive Driving Course"*).
7. Brainstorm a list of recovery options that should be instituted (e.g., *"Have a Health Department Accident Investigation Team Go to the Accident Site and Provide Assistance to Those Impacted"*).
8. Analyze the Bow Tie Diagram. Determine if sufficient prevention controls and recovery options are in place to mitigate the situation(s). Develop additional prevention controls and recovery options as necessary to minimize the high-risk situation.



**Example:**

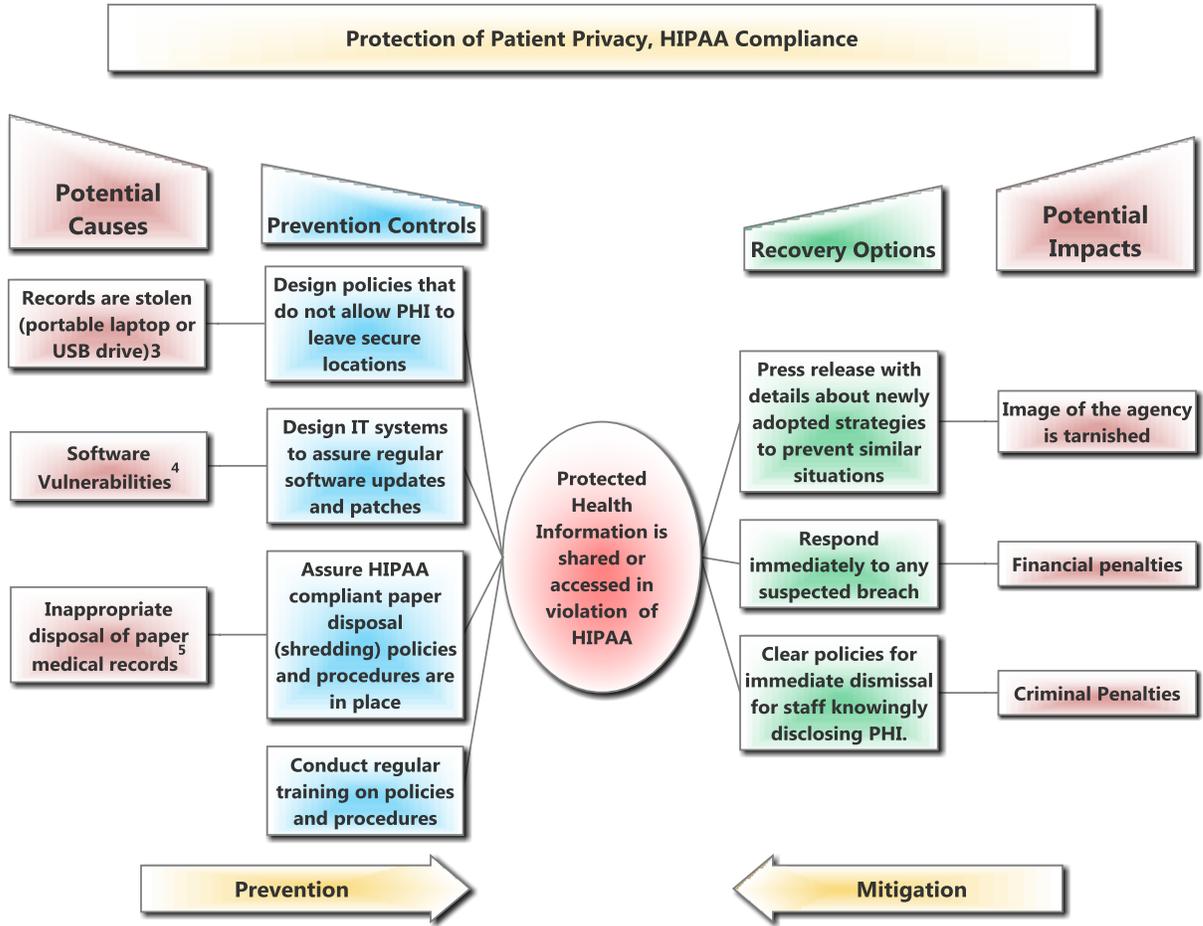
Another example of a potentially high-risk and high-impact public health concern is the protection of personal health information. The U.S. Department of Health and Human Services Office for Civil Rights is responsible for enforcing privacy and security rules. Enforcement of the Privacy Rule began April 14, 2003 for most activities covered under the Health Insurance Portability and Accountability Act of 1996 (HIPAA). Since 2003, corrective actions have resulted in systemic change that has improved the privacy protection of health information for all individuals they serve. However, the risks to agencies who do not comply are significant. The case examples and resolutions<sup>3, 4, 5</sup> are [publicly available](#) and reveal significant agency penalties. One county health agency serving a population of just over 100,000 residents faced a fine of \$215,000 and a low-population state health department was fined \$1.7 million. These case examples also detail the causes of the violation, potential impacts, and require prevention controls.

<sup>3</sup> [Alaska DHSS settles HIPAA Security Case for \\$1,700,000](#) (2012))

<sup>4</sup> [HIPAA Settlement Highlights Importance of Safeguards When Using Internet Applications](#) (2015)

<sup>5</sup> [HIPAA Settlement Highlights the Continuing Importance of Secure Disposal of Paper Medical Records](#) (2015)

**Bow Tie Example:**



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