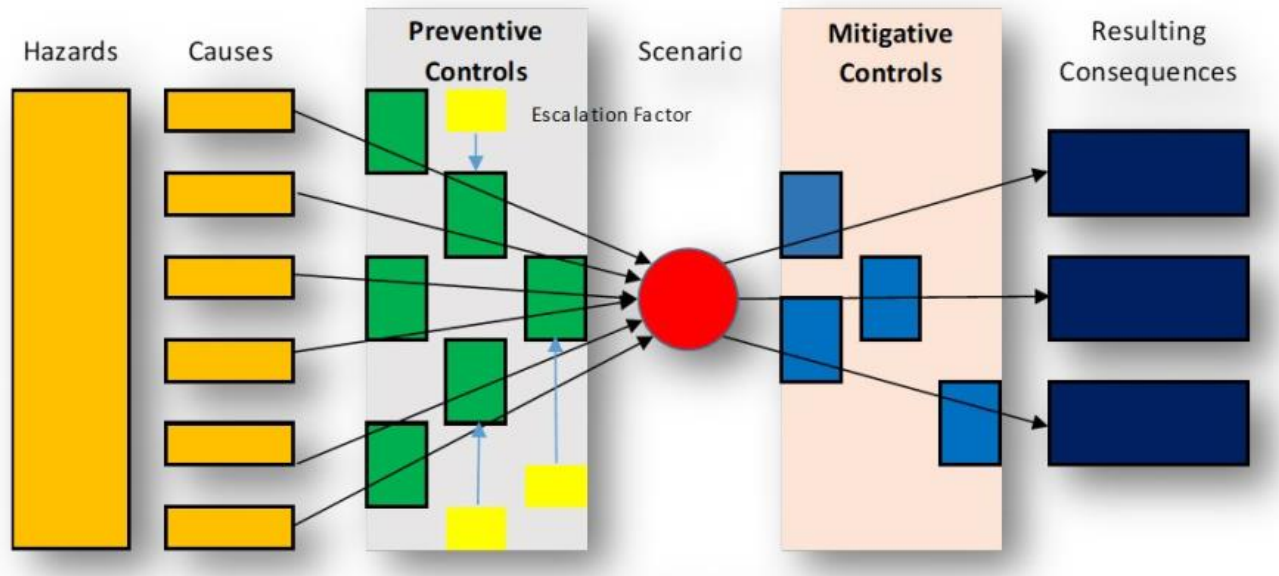




BOW-TIE ANALYSIS

FOR PATIENT SAFETY RISK MANAGEMENT IN BULGARIAN HOSPITALS

EU SAFETY 2022 VIENNA



Associate Professor Rositsa Dimova, MD, PhD,

**Dept. of Health Management and Health Economics,
Faculty of Public Health, Medical University of Plovdiv, Bulgaria*

Assistant Professor Vesela Blagoeva, MD,

*First Dept. of Internal Diseases, Section of Pneumology and
Phthisiatrics, Medical University Plovdiv*

Chief Assistant Professor Rumyana Stoyanova*, PhD,

Chief Assistant Professor Mladen Doykov, MD, PhD,
*Dept. of Urology and General Medicine, Medical University of
Plovdiv, Bulgaria*

Chief Assistant Professor Miglena Tarnovska, MD, PhD
*Dept. of Healthcare Management, Section of Medical Ethics and Law,
Medical University of Plovdiv, Plovdiv, Bulgaria*



BOW-TIE ANALYSIS

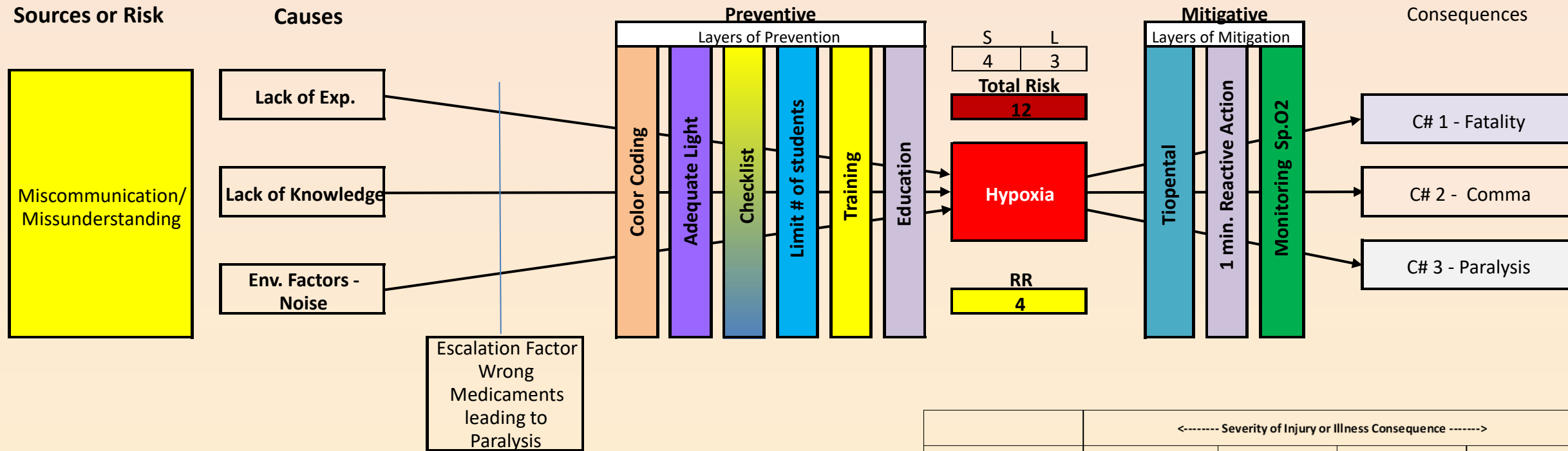
EU SAFETY 2022 VIENNA

FOR PATIENT SAFETY RISK MANAGEMENT IN BULGARIAN HOSPITALS

Anesthesia procedure. Team: Surgeons, operating and anesthesiology nurses and students (a total of about 16 people). The anesthesiologist prescribed intravenous administration of the administered anesthetic Thiopental 250 mg. Due to the unusually **noisy environment**, the young **inexperienced** anesthesiologist nurse heard the muscle relaxant Tracrium at a dose of 50 mg. After administration of the muscle relaxant within 90 seconds, the patient suppresses spontaneous breathing due to paralysis of the respiratory muscles while maintaining clear consciousness.

The Bow-Tie Analysis (BTA) method provides a big picture view of a hazard scenario and its relationships between hazards and causes, barriers to prevent occurrence, and mitigating controls to reduce the impact should an event occur. BTA is used to analyze the adequacy of barriers to 'prevent the occurrence' as well as barrier to 'mitigate the impact' in the event of occurrence, so that the risks can be visualized and communicated to decision makers.

Striped Bow Tie® methodology



Using the formula, **Severity x Likelihood = Risk**, risk without sufficient preventive measureless is estimated. Risk Reduction (RR) is estimated after the implementation of the preventive measures. The new Striped Bow Tie® methodology successfully provides a visual way of communicating the risk pathways and existing controls for this particular case.

No complications were reported in the patient after adequate and timely actions.

	<----- Severity of Injury or Illness Consequence ----->			
Likelihood of Occurrence or Exposure for select unit of Time or Activity	Negligible (1)	Marginal (2)	Critical (3)	Catastrophic (4)
Frequent (5)	5	10	15	20
Probable (4)	4	8	12	16
Occasional (3)	3	6	9	12
Moderate (2)	2	4	6	8
Unlikely (1)	1	2	3	4

Sources: ANSI/ASSP Z590.3-2021: *Prevention Through Design*
 ASSP TR-31010-2020 Technical Report: Risk Management -
 Techniques for Safety Practitioners