training in risk assessment, early warning strategies, family communication, and comprehensive preventive measures serves as a key mediator in translating risk recognition into actual reductions in adverse events. Accordingly, an "indicator-driven training prescription" is recommended: NSI trends related to falls, pressure injuries, infections, and medication-related events should be used as signals to precisely target training topics; case reviews and simulation-based exercises can enhance team capabilities in recognition, communication, and response, and training effectiveness should be continuously tracked through process NSIs (e.g., screening completion rates and bundle adherence) (Shoukr et al., 2025).

In terms of risk management, adverse event reporting, analysis, and feedback mechanisms should be strengthened, and a non-punitive safety culture fostered to reduce underreporting and enhance organizational learning. In long-term care settings, nurses often face strategic dilemmas between person-centered care and risk control and express concerns about legal and personal consequences, highlighting the need for clear policies, procedures, and decision-support tools to enable negotiated approaches to risk management (Behrens et al., 2023). Risk management guidelines and practical experience emphasize the establishment of infection prevention leads, multidisciplinary safety committees, structured surveillance programs, and regular case reviews to address systemic threats such as infection outbreaks, aspiration, falls, or clusters of pressure injuries. Moreover, the "failure to maintain" theory underscores that risk management systems must explicitly protect and invest in fundamental nursing care-mobility, hydration, nutrition, skin care, and communication-to prevent the escalation of latent nursing rationing into increased rates of urinary tract infections, pneumonia, pressure injuries, and delirium. This provides a theoretical basis for incorporating fundamental care process indicators into NSI frameworks (Figure 2).

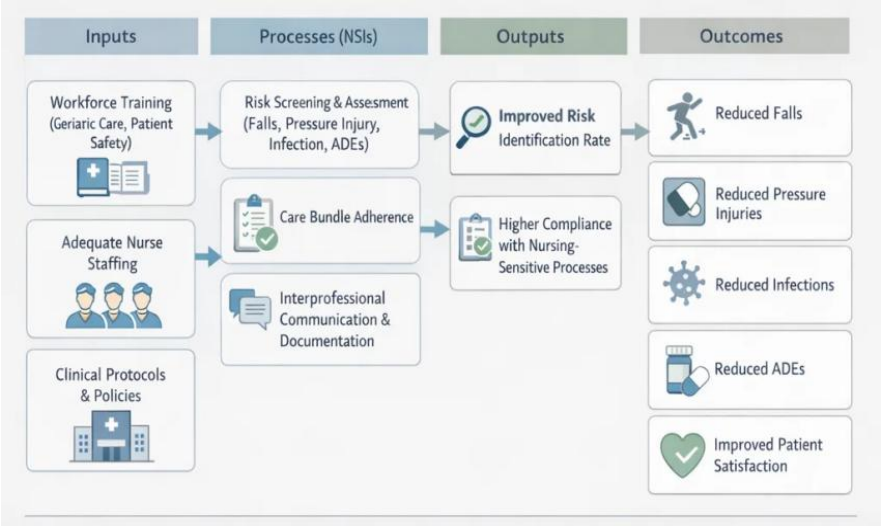

Figure 2 Nursing workforce inputs, process NSIs, and patient safety outcomes in geriatric inpatient care

At the same time, attention should be paid to nursing workload and psychological well-being, with appropriate staffing and process redesign implemented to mitigate the negative effects of burnout on care quality. Integrating staff training, risk governance, and NSI monitoring into a unified "learning system" can facilitate a shift from experience-driven practice to data-driven, continuously learning care models, thereby promoting sustained improvements in safety and quality of nursing care for hospitalized older patients (Shoukr et al., 2025).

6 Evaluation of Quality Improvement Effects

6.1 Changes in nursing-sensitive indicators before and after quality improvement

Systematic comparison of nursing-sensitive indicators (NSIs) before and after the implementation of quality improvement (QI) initiatives is a core component of evaluating intervention effectiveness. Longitudinal analyses of key outcome indicators-such as fall rates, pressure injury incidence, unplanned device removal, and medication error rates-can directly illustrate trajectories of change in nursing quality. From a broader NSI framework, however, structural indicators (e.g., staff qualifications and training coverage) and process indicators (e.g.,