Sure, I'll help you develop a safety case for a Generic Patient-Controlled Analgesia (GPCA) system using Goal Structuring Notation (GSN) in a hierarchical tree format. Here's an example to guide you:

```

Goal: Ensure the safety of the GPCA system for patient use.

- Context: The GPCA system is designed to deliver controlled doses of analgesic medication to patients.

- Strategy: Demonstrate safety through hazard identification, risk assessment, and mitigation.

- Goal: Identify potential hazards associated with the GPCA system.

- Solution: Hazard Analysis Report.

- Context: List of potential hazards identified through systematic analysis.

- Goal: Assess the risks associated with identified hazards.

- Solution: Risk Assessment Document.

- Context: Risk matrix indicating the likelihood and severity of each hazard.

- Goal: Implement controls to mitigate identified risks.

- Solution: Mitigation Plan.

- Context: Description of safety features and processes to reduce risks.

- Strategy: Ensure the system meets safety requirements through design and testing.

- Goal: Design the system in accordance with recognized safety standards.

- Solution: Compliance Report.

- Context: List of standards (e.g., ISO 14971) the system complies with.

- Goal: Verify the system through rigorous testing.

- Solution: Test Plan and Results.

- Context: Test protocols and results proving system safety in various scenarios.

- Strategy: Ensure the system is safe during operation and maintenance.

- Goal: Provide comprehensive training to users and maintenance staff.

- Solution: Training Program.

- Context: Training materials and schedules.

- Goal: Establish operational procedures that ensure ongoing safety.

- Solution: Operational Procedures Manual.

- Context: Procedures for normal operation, dealing with anomalies, and emergency situations.

- Strategy: Monitor and review the system post-deployment to ensure continued safety.

- Goal: Implement a monitoring system to collect and analyze operational data.

- Solution: Monitoring Report.

- Context: Data collection methods and analysis procedures.

- Goal: Conduct regular safety reviews and updates.

- Solution: Safety Review Reports.

- Context: Frequency and scope of safety reviews, including post-market surveillance findings.

- Strategy: Manage and respond to safety incidents.

- Goal: Develop an incident response plan.

- Solution: Incident Response Plan.

- Context: Steps to follow in the event of a safety incident.

- Goal: Investigate reported incidents and implement corrective actions.

- Solution: Incident Investigation Reports.

- Context: Root cause analysis and updates to system and procedures based on findings.

```

This hierarchical tree structure provides a structured representation of the safety case for the GPCA system using Goal Structuring Notation (GSN). It outlines the primary safety goal, context, and various strategies and sub-goals needed to demonstrate and assure the safety of the system. Each goal is further supported by solutions and contexts that detail the implementation and documentation required.