Sure, here is a safety case for a Generic Patient-Controlled Analgesia (GPCA) system represented in a hierarchical tree format using dashes:

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- Safety Case for GPCA System

- Goal: Ensure the safety of the GPCA system

- Context: Safety standards and regulations

- Strategy: Argue safety through system design, development process, and testing

- Sub-Goal 1: Safe system design

- Context: Design specifications and architecture

- Strategy: Address all potential hazards identified

- Solution: Hazard Analysis

- Evidence: Hazard Analysis Report

- Sub-Goal: Hazard mitigation

- Context: List of identified hazards

- Strategy: Apply and verify mitigation techniques for each hazard

- Solution: Mitigation Techniques

- Evidence: Verification and Validation Report

- Sub-Goal 2: Safe development process

- Context: Development plan and lifecycle model

- Strategy: Ensure adherence to development standards

- Solution: Development Process

- Evidence: Compliance with IEC 62304 (Medical Device Software Lifecycle Processes)

- Sub-Goal: Code Quality Assurance

- Context: Coding standards

- Strategy: Code reviews and static analysis

- Solution: Code Review Records

- Evidence: Code Review Logs

- Solution: Static Analysis Tools

- Evidence: Static Analysis Report

- Sub-Goal 3: Comprehensive testing

- Context: Test plan and test cases

- Strategy: Comprehensive testing to ensure all requirements met

- Solution: Testing Strategy

- Evidence: Test Plan Document

- Sub-Goal: Unit testing

- Context: Unit test cases

- Strategy: Verify individual components

- Solution: Unit Test

- Evidence: Unit Test Results

- Sub-Goal: Integration testing

- Context: Integration test cases

- Strategy: Verify component interactions

- Solution: Integration Test

- Evidence: Integration Test Results

- Sub-Goal: System testing

- Context: System test cases

- Strategy: Validate the system as a whole

- Solution: System Test

- Evidence: System Test Results

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This structure ensures each aspect of the safety case is thoroughly addressed, from design and development to testing, with clear strategies and supporting evidence for each sub-goal.