To instantiate the safety case for the Generic Patient-Controlled Analgesia (GPCA) system from the given safety case pattern and replace all placeholders with specific, system-relevant information, while also developing and eliminating undeveloped strategy nodes:

1. \*\*Replace Placeholders:\*\* Referring to the domain information about overinfusion and underinfusion as the operational hazards and other specific details provided.

2. \*\*Develop Strategies:\*\* Strategies marked as undeveloped should be expanded with more detailed argument reasoning.

\*\*Safety Case using Hierarchical GSN Representation:\*\*

- `G1: Operational safety is verified in GPCA system`

- `- S1: Argument over the satisfaction of all safety specifications over GPCA system`

- `--- C1: All specifications related to safety requirements are taken into account`

- `- G2: All operational hazards are mitigated`

- `--- S3: Argument over operational hazards`

- `----- C2: Operational hazards include Overinfusion and Underinfusion`

- `----- G3: Overinfusion is mitigated`

- `------- S4: Argument over Overinfusion scenarios`

- `--------- C3: Relevant scenarios for Overinfusion include incorrect flow rate setting and bolus volume high`

- `--------- G4: Overinfusion due to incorrect flow rate is mitigated under normal use scenario`

- `----------- S5: Argument over safety requirements related to flow rate control`

- `------------- C4: Details provided by flow rate control scenario`

- `------------- G5: Flow rate sensor specification is appropriate for normal use scenario`

- `--------------- S6: Argument over the appropriateness of flow rate sensor specification`

- `----------------- C5: Specifications include sensor accuracy and response time`

- `----------------- G6: Flow rate sensor accuracy is sufficient`

- `------------------- S7: Argument over the source of flow rate sensor specification`

- `--------------------- C6: Source is based on FDA standards and manufacturer data`

- `--------------------- G7: FDA standard is appropriate and trustworthy`

- `----------------------- Sn1: FDA standard documentation`

- `--------------------- G8: Definition of sufficient accuracy is well-documented`

- `----------------------- Sn2: Documentation detailing sensor accuracy standards`

- `----- G3: Underinfusion is mitigated`

- `Note: S4, S5, S6 follows similar detailed argument structure for underinfusion`

- `- S2: Argument over reliability in all suitable levels of GPCA system`

- `--- C1: Reliability considered at hardware, software, and user operation levels`

This structured tree effectively instantiates the assurance case for the GPCA system, removing placeholders, applying concrete scenarios and system-specific details, and addressing undeveloped strategy nodes and placeholder elements.