



The UML diagram outlines a healthcare monitoring system with clearly defined class responsibilities and interactions:

- 1. PatientData** stores individual health metrics and timestamps, serving as the primary data structure for patient information.
- 2. AlertGenerator** is responsible for evaluating this data against thresholds defined in PatientProfile to generate Alerts. The "Data stream" arrow from PatientData to AlertGenerator indicates a one-way flow of data into the alert system.
- 3. Alert** encapsulates the data necessary to notify staff of a patient's critical condition, linking back to PatientData through shared identifiers.
- 4. AlertManager** acts as a mediator, handling Alerts by managing their lifecycle and dispatching them to the MedicalStaffDevice as indicated by the "Managed by" and "Notifies" relationships. The use of aggregation between AlertManager and Alert suggests that while AlertManager controls alerts, alerts can exist independently of the manager.
- 5. MedicalStaffDevice** is the end-point for alerts, where notifications are received, representing the real-world devices used by healthcare professionals.
- 6. The CHMS** is the central system that maintains PatientProfiles, which contain AlertThresholds. "Manages" and "Contains" relationships indicate ownership and direct composition, implying that thresholds are integral components of patient profiles.

Arrows from AlertGenerator to Alert and AlertManager to MedicalStaffDevice illustrate the flow of alerts through the system, while the "uses" arrow from AlertGenerator to CHMS indicates dependency on patient profiles for threshold data.