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Healthcare 4.0

Connected hospitals, clinical data and security: 5G and DAS networks for care

Summary

- The connected hospital uses the network for patient telemetry, asset tracking, logistics, teleconsultation and video. It needs reliable indoor coverage and separation of critical services.
- Italy's DAS 5G call funds four healthcare organisations: AUSL Toscana Centro, AOU Pisana, AOU Meyer and ASL Taranto. Projects must be delivered in 2026–2027.
- The European Health Data Space (EHDS) is in force: from 26 March 2029 patient summaries and e-prescriptions will be exchanged, and electronic health record systems must be interoperable and secure.
- Healthcare is within NIS2 scope. For AI in medical devices, AI Act obligations move to 2 August 2028 under the May 2026 agreement.

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Context

Radio in hospitals faces specific obstacles: shielded walls, operating theatres, medical equipment sensitive to fields. A network designed without measurements and compatibility checks leaves coverage gaps and faults that are hard to diagnose.

New rules push towards interoperable and secure clinical data. The network stops being a technical installation and becomes part of the care system: it must be designed, tested and operated with the same security criteria as the rest of the hospital.

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Regulatory framework

Regulation or standard	What it requires	Dates
MDR – Regulation (EU) 2017/745	Safety and performance of medical devices, including software	In force
EHDS – Regulation (EU) 2025/327	Primary and secondary use of health data; requirements for EHR systems	26/3/2027 first provisions; 26/3/2029 patient summaries and e-prescriptions; 26/3/2031 images and reports
NIS2 – Italian Legislative Decree 138/2024	Healthcare as a highly critical sector: risk management, suppliers, incident reporting	Baseline measures by October 2026 (entities notified in 2025)
AI Act – Regulation (EU) 2024/1689	AI as a medical device or component: high-risk requirements	2/8/2028 under the May 2026 omnibus agreement
RED – Delegated Regulation (EU) 2022/30, EN 18031	Cybersecurity of connected radio equipment	From 1/8/2025
IEC 60601-1-2	Electromagnetic compatibility of medical electrical equipment	To be checked in design

This document is for information only and is not legal advice. Regulatory dates and obligations must be checked against official texts at the time of application.

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Reference architecture

Clinical and operational services telemonitoring · asset tracking · logistics · teleconsultation	L5
Data and AI interoperable EHR · HL7 FHIR · AI with clinical oversight	L4
Hospital cloud and edge on-premise data · local traffic breakout	L3
Networks multi-operator indoor 5G DAS · dedicated slices · Wi-Fi	L2
Field medical devices · sensors · location tags · logistics robots	L1

Each layer has its own performance, security and management requirements: acceptance testing is done layer by layer and end to end.

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Use cases

Use case	Technology	KPIs to measure
Patient telemetry on wards	5G or Wi-Fi with priority	Latency, reliability
Asset tracking	5G positioning or BLE	Accuracy, search time
Logistics with robots and AGVs	Private 5G	Coverage continuity
Teleconsultation and connected ambulance	5G uplink	Video quality, handover
Coverage for staff and patients	Multi-operator DAS	Indoor RSRP

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Getting started in 90 days

- 1 Map critical areas and services: wards, operating theatres, emergency department.
- 2 Check compatibility with medical equipment and bring the network into NIS2 measures.
- 3 Write the DAS specification with measurable KPIs and security clauses.
- 4 Run a pilot on one ward, with field acceptance testing.
- 5 Prepare the operating plan and training for technical staff.

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How Conection works

Conexion supports public bodies and companies as independent engineers: we write measurable requirements and specifications, check suppliers' designs, run field acceptance tests and train staff. We do not sell equipment, so we can stay on the side of the people who use the network.

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Sources

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