



Hospital communications guide

A practical guide to optimising the digital care pathway

Brochure

Alcatel·Lucent 
Enterprise



What is a care pathway?

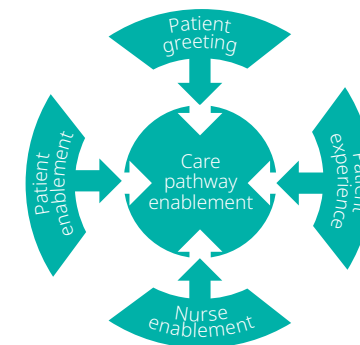
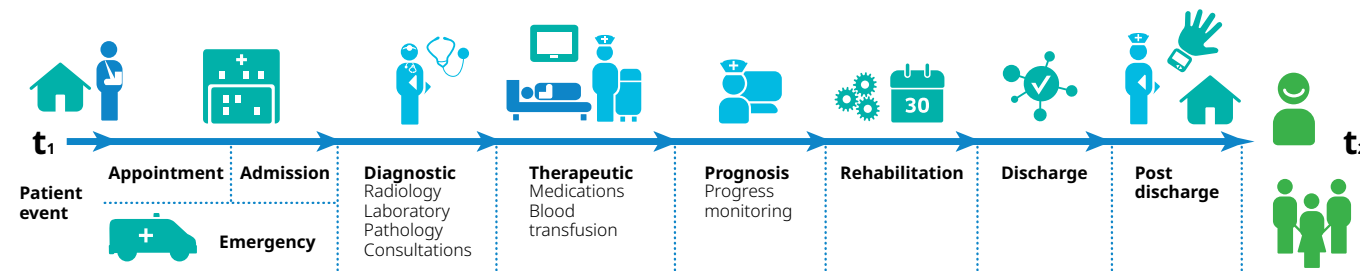
An integrated care pathway is an outline of anticipated multidisciplinary care delivery in which the different tasks and interventions by the clinicians involved in the patient care are defined, optimised, sequenced and placed in an appropriate timeframe. So the care pathways aim is to promote organised and efficient patient care focused on evidence-based medicine and enhance outcomes in settings such as acute care and home care. This also helps patients with a specific condition or set of symptoms, move progressively through a clinical experience to achieve better outcomes.

In today's world, care pathways are increasingly digitised, encompassing more and more digital technologies to enable hospitals and clinical staff to follow and support patients through their healthcare journey, before, during and after their hospital stay. A digital care pathway enables more streamlined, proactive and patient-centric care.

Real-time communications enable positive outcomes in many areas:

- Increased patient satisfaction, whether the patient calls the hospital, makes an appointment with a physician, or stays in a hospital due to acute, chronic or long-term conditions
- Improved patient safety by providing instant access to the best available resources and sending the right information to the right person at the right time
- Enhanced support for complex interventions requiring mutual decision-making

Real-time communications provide better outcomes, increase patient satisfaction and support shorter stays and early discharge.



The following recommendations optimise the care pathway for patients and clinical staff.

Recommendation 1

Create better central and care unit patient welcome and greeting

Care providers need to convey an appropriate welcome and greeting at all levels. A poorly delivered welcome may create patient frustration and harm the hospital's image. With the emergence of social media where hospital and clinic performance may be under constant scrutiny, the following measures are recommended:

- Centralise the call answering function to create better outcomes for callers and for the attendant team
- Provide attendants with a real-time monitoring tool that displays performance metrics to help them quickly identify weaknesses and adopt corrective strategies
- Relieve stretched care units' resources from repetitive tasks:
 - Roll-out a flexible call routing strategy at the care unit level based on skills, calendar, location, presence or external database (such as caregivers' schedule). Automate call flows with multi-lingual Text-to-Speech voices. Use digit selection or automatic speech recognition to get input from a patient on an incoming call
 - Enable direct access to an inpatient with a room number
 - Reach the right person, with multiple menu options, announcement, direct call or supervised call
 - Offer an intuitive programming interface for multiple administrators, each with their own view, such as the greeting recording customisation for a care unit

Location: Quebec, Canada - Fertily clinic

The Fertily clinic is a medically assisted reproduction centre serving a population of 800,000 in Quebec. It is recognised for quality services and high success rate of in-vitro fertilisation and intrauterine insemination. The clinic could not afford to continue to lose calls which was causing patient dissatisfaction and frustration. They deployed a stable, reliable telephony infrastructure and automated welcome solution to seamlessly handle patient calls and provide superior telephone assistance, ensuring quality patient experience and clinical services delivery.

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Recommendation 2

Provide a healing experience using technologies to stay connected with patients at home

With the constraints of today's healthcare spending, a rise in the number of people over 65 years of age, and an increase in non-communicable diseases, technology must be adopted to enable patients to stay connected to the hospital from home or elsewhere, for pre-operative procedures or therapy.

A communications solution can be provided to the patient to maintain the link with the hospital through omnichannel flows (chat, voice, video). This solution is based on a mobile application for smartphones, perfectly adapted to gen-X, Y or Z, or on a deskphone for less technology-savvy generations. Finally, it must be as flexible as possible in terms of use and software openness to adapt to the specific patient case, such as peri-operative follow-up, or chronic disease monitoring.

Software openness can be leveraged to improve these types of medical applications by enabling different chat containers (for example; one chat flow for nurses and another for admin staff chats) to answer questions and share documents and photos. Secure connectivity to the patient's home and to IoT devices, such as patient monitors, enable remote patient care.

Location: Japan - Hokkaido municipality

Hokkaido is the second largest of Japan's four main islands. Their Information and Communication Infrastructure Utilisation Promotion Council has a strong focus on user adoption, to ensure its elderly population could adapt to the Government's social plans and deliver good care for the aging population to maintain their health and mental well-being. With the objective of keeping communities connected, they have equipped elderly resident homes with customised Alcatel-Lucent 8088 Smart IP terminals for high-quality multimedia communications and application services. This technology addresses some of the medical care challenges, enabling the elderly to connect from home with authorities, their families and friends, through streamlined communications, video, messaging, and notification alerts.

Recommendation 3

Facilitate physicians' lives with collaboration and real-time communications systems

Roll out real-time communications technologies that help physicians and other clinicians collaborate while better managing time-sensitive interruptions.

- Enable the head nurse to listen to the night shift report recording and note any useful information or images
- Facilitate instant communications and collaboration with teams on-site or remote
- Physicians, nurses and therapists need to agree on patient protocol through in-person and virtual meetings:
 - Plan real-time collaboration to empower Multi-Disciplinary Team (MDT) meetings with voice, instant messaging (IM), as well as screen and documents sharing
 - Enable physicians to be reached through several devices inside and outside the hospital through a unique professional number
 - Integrate communication from business application, like “Electronic Medical Record” (EMR), “Electronic Health Record” (EHR) application or even from Microsoft® Teams

Location: USA - A group of hospitals with 75,000 employees

During the pandemic, most doctors generated cellular communications from their smartphones EPIC application to call their patients. This resulted in a sharp increase in communication expenses. The hospital group decided to integrate outgoing calls through their communications system and Wi-Fi infrastructure, significantly lowering the bill. For this purpose, the HIPAA-certified [Rainbow™ by Alcatel-Lucent Enterprise](#) collaboration solution was integrated into the doctor's smartphone EPIC application and is now also used to manage their MDT meetings.

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Recommendation 4

Improve staff reactivity with focused notification

More effective communications enable clinical staff to devote more time to patients and help reduce their length of stay. According to an Accenture study*, U.S. hospitals “waste” approximately \$12 billion U.S. dollars annually due to poor communication among care providers. Of that money, 40 percent, or about 5 billion dollars, is due to latency in nurse communications.

A typical 500-bed acute-care hospital can experience an annual economic burden of about \$4 million dollars due to wasted physician and nurse communication time and potential increase in the length of stays. Cut costs by:

- Rolling out notification services based on flexible and secure alarm workflows to alert nurses on duty
- Having multiple notification forms such as nurse calls and patient wandering detection
- Offering situational awareness - such as location, calendar or availability
- Connecting IoT devices and wearables that track patients' medical conditions (for example: presence sensor, camera, smart-bed, floor sensor)

Location: Sweden - A clinic in Stockholm

The Swedish clinic has, among other practices, a leading gastroenterological and endoscopic care unit that has been in existence for almost twenty years. They have deployed notification services including a notification application for smart phones and a geolocation application to reinforce their patient security.

*Accenture 2013 “A call to action: Overcoming Communication Challenges in Hospitals”

Recommendation 5

Protect people and assets

Over the past several years hospitals have experienced an increase in the number of violent acts, harming staff, caregivers and patients, as well as jeopardising assets through theft, destruction and intrusion into protected zones.

Hospitals also have had to consider threats imposed by terrorist activity; They must be prepared to manage a potential attack and protect their sites, patients, visitors and staff, and be prepared to handle mass-casualty incidents.

- Secure clinical staff through handsets or smart phone applications providing alarm buttons and man down alarm capabilities including geolocation
- Detect technical alarms (such as fire sensor, contact-type detector and security camera) throughout the building to launch the appropriate notification services
- Manage human communication to 911/112 (public safety answering point) including calling device localisation
- Enable audio recording on demand
- Manage a secure, priority-based messaging system with persistent audio alerts
- Prepare for mass casualty incidents (MCI) and deploy MCI solutions combining emergency conferencing and team mobilisation using notification services
- Notify a limited number of persons (for instance caregivers or security guards) and send mass notifications to reach as many people as possible, through audio broadcast messages and text messages on hospital displays
- Play pre-configured routing scripts with specific greetings to hospital callers to regulate a sudden patient flow in case of an emergency (such as a major road traffic accident, natural disaster, or act of terrorism)

Location: France - A hospital with 500+ employees and specialized in psychiatric

The hospital improved their medical processes by deploying a unique IP notification system to deliver a variety of services. This system offers the capability to mobilise the right staff and experts for each emergency entrance, including escalation management. It also provides lone worker protection services for nurses, with geolocation of the nurses' DECT handset based on ALE Bluetooth Low Energy (BTLE) technology. More than 140 BTLE beacons have been installed to reach the expected level of location accuracy.

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Recommendation 6

Build redundancy into your communications system for a very short recovery time objective (RTO)

Whether for a single clinic or a hospital with hundreds of locations, care providers require a robust and resilient telecom infrastructure. Along with the electronic health record, mobility is also at the heart of the healthcare transformation to enable a fluid clinical workflow.

- Plan a robust core telephony infrastructure with a very short RTO
- Create a system that can be fully virtualised and is easy to manage
- Roll out a platform that supports an increasingly mobile, connected and remote healthcare workforce over multiple networks such as WLAN, DECT or cellular

Location: France - Mayotte Hospital

Mayotte hospital is the largest maternity hospital in Europe with almost 10,000 births per year. After a long period of instability in their communications system, the hospital decided to invest in a robust, redundant and forward-looking ALE communications infrastructure. To this end, they decided to implement a reliable Wi-Fi infrastructure to provide mobility and collaboration solutions across their 15 sites. An interactive voice server offers a more modern and functional quality patient welcome service to guarantee the transfer of calls to the agent/attendant.

Recommendation 7

Design the network capable of natively supporting VoIP, connected devices, hospital applications and systems

A hospital's network is the foundation for the critical applications that run on it. The return on the investment made on electronic medical records (EMR), picture archiving and communication systems (PACS), clinical imaging systems and IP communications can only be realised if those assets connect people reliably, securely and with very high performance.

- Integrate unified access that natively powers VoIP phones, prioritises and differentiates real-time applications over those more tolerant of latency and jitter
- Deploy a WLAN infrastructure supporting Wi-Fi 6/6E as most healthcare devices depend on being mobile – user devices such as VoIP phones/apps, CoWs (computer on wheels), clinical devices like infusion pumps, mobile image capture (radiology and magnetic resonance imaging) and other sensors
- Right size the core of your hospital infrastructure for a redundant and resilient performance that matches the one available on the communications system
- Secure IoT platforms for smart medical devices, location services, building management and security surveillance
- Enable location services such as interactive maps, asset tracking and contact tracing

Location: China - A large hospital of 4,750 beds

This Chinese hospital is a leading hospital in digitalisation and hospital information system (HIS) application. They rolled out a network and communications system (voice and contact centre) suitable for their future expansion. The combination of IP telephony, medical application and medical management systems and the underlying network saves at least 30 seconds per emergency, per patient. The shortened patient-in-hospital cycle increased the use rate of the beds to close to 99% while reducing the hospital's operational costs by 0.2 million ¥ each year.

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Recommendation 8

Engage in successful digital transformation by selecting the right technology to connect people and machines

Digital transformation has the potential to redefine how people, technology and IoMT interact and connect with each other in healthcare environments, helping to promote better care, reduce costs and improve outcomes. One of the keys to the adoption and generalisation of such services is the connectivity integrated into business processes.

- Digital transformation requires reliable machines to connect:
 - Bots, Machine Learning and Artificial Intelligence applications
 - Smart sensors and other connected devices
 - Portal integrating communications and multimedia collaboration systems
 - Big data and analytics
 - Asset tracking services based on Bluetooth Low Energy technology
- Plenty of business digital applications are flourishing around the world, however in many cases, the applications don't integrate connectivity among patients, caregivers and business processes. This connectivity can be delivered through:
 - User presence
 - Audio or video call
 - Text message
 - File and screen sharing
 - Natural-language processing
 - IoT monitoring
 - Notification services
 - Telephony services (call control, conference and more)

- Integrate an open platform as a service. Leverage existing in-house applications and business processes with this connectivity technology offering a set of standard APIs and providing innovative services for both patients and clinical staff:
 - Tele-consultation
 - Inpatient self-services
 - Ambulatory care applications
 - Patient follow-up applications
 - EMR/caregiver/patient portal
 - Social network for clinical ward

Location: Spain - Servicio Cantabro de Salud (Cantabrian Health Service)

Servicio Cantabro de Salud (SCS) is an autonomous administrative body attached to the Regional Ministry of Health of the Government of Cantabria, the 8th richest region in Spain. Before the pandemic, SCS decided to accelerate their digital presence for the citizen. SCS understood that it would be increasingly difficult to provide access to medical professionals during a pandemic. To address this unprecedented situation, they implemented a Communications Platform as a Service (CPaaS) strategy to maintain continuity of patient care with a focus on telemedicine. They knew that virtual care, powered by CPaaS technology, could provide an opportunity to reduce the strain on their already over-extended healthcare systems. SCS integrated Rainbow CPaaS (ALE technology) into the citizen application SCSalud and into an oncology application, enabling:

- Chat services integrating a chatbot for recurrent patient queries
- Video consultation with healthcare experts for chronic patients
- Video conference between oncologists



Optimise the care pathway

Alcatel-Lucent Enterprise converged solutions optimise the care pathway for patients and clinical staff as they provide:

- Better call support centrally, in the care unit and in emergency situations
- A unique patient experience
- Increased staff efficiency with collaboration and real-time communications systems
- Improved nurse reactivity
- Enhanced people and assets protection
- Robust and resilient real-time communications and network infrastructure enabling a very short recovery time objective
- A network capable of natively supporting VoIP, connected devices, hospital applications and systems
- A reliable relationship machine connecting people and objects for more agile business processes

With the ALE communications suite, caregivers benefit from differentiated solutions and services practices. The reliability, performance and resilient environments allow caregivers to focus on those who matter the most – their patients.

Solutions for:

Recommendation 1

Alcatel-Lucent OmniPCX® Enterprise attendant solutions (Alcatel-Lucent 4059 Extended Edition or attendant application on ALE-300 DeskPhone) with customised Soft Panel Manager for metrics display

Alcatel-Lucent Visual Automated Attendant (Interactive Voice Response system)

Recommendation 2

Alcatel-Lucent 8088 DeskPhone, customised, running on Android OS and equipped with an analogue keypad

Rainbow CPaaS (Communications Platform as a Service) HUB offering a communications API

Recommendation 3

Cloud-based collaboration system:
Rainbow collaboration services

For business application integration:
Rainbow CPaaS or MS Teams connector

Recommendation 4

Third-party Notification Server, OmniAccess Stellar for WLAN infrastructure, WLAN handsets (Alcatel-Lucent 8158s/8168s WLAN handsets) and notification using the smartphone application, DECT infrastructure and handsets range including man down capabilities (Alcatel-Lucent 8262 DECT handset)

Recommendation 5

To automate and secure the onboarding and management of IoT devices, use Rainbow connectivity for technical alarms (Rainbow Alert), Alcatel-Lucent Visual Notification Assistant for 911/112 calls, Alcatel-Lucent OmniPCX® RECORD Suite, Visual Automated Attendant

Recommendation 6

Alcatel-Lucent OmniPCX® Enterprise Communication Server Purple

Recommendation 7

Alcatel-Lucent OmniSwitch® for the access and core network infrastructure, Alcatel-Lucent OmniAccess® Stellar for WLAN infrastructure, including OmniAccess Stellar access points and OmniAccess Stellar Asset Tracking, converged with OmniPCX Enterprise

Recommendation 8

Rainbow CPaaS Hub provides an open platform as-a-Service with a set of standard APIs leveraging existing in-house applications and business processes.



Discover how we can help you connect your patients, staff and healthcare ecosystem.

Additional information

www.al-enterprise.com/en/industries/healthcare

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