ALE | Where Everything Connects

Hospital Communication Guide

A practical guide to optimize the care pathway for patients, clinical staff and hospitals

Brochure

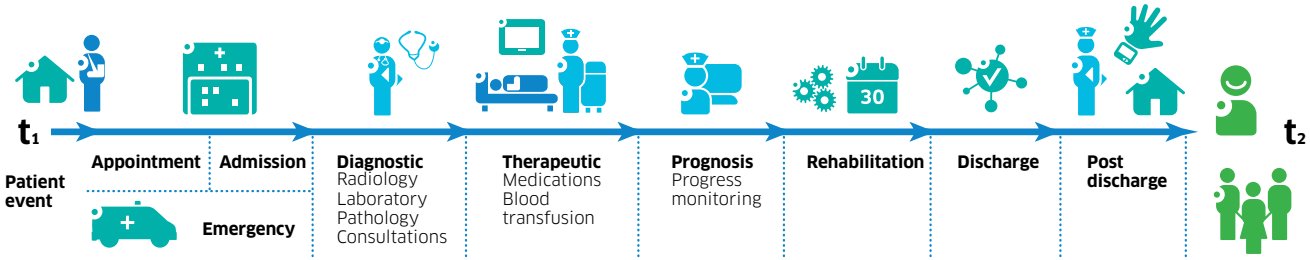
Alcatel·Lucent Enterprise

What is a care pathway?

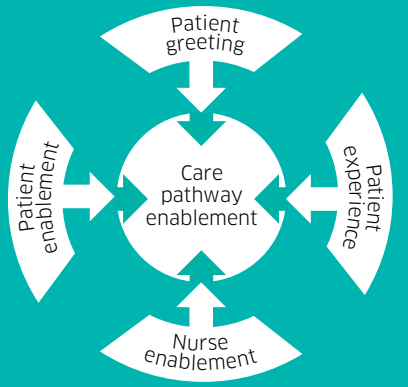
An integrated care pathway is an outline of anticipated multidisciplinary care delivery in which the different tasks and interventions by the clinicians involved in the patient care are defined, optimized, sequenced and placed in an appropriate timeframe. This helps patients with a specific condition or set of symptoms move progressively through a clinical experience to positive outcomes.

Real-time communication, collaboration and alarm notification services 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 and 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



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



Typical ratio of user types connected to the hospital communication system:

- Nurse 38%
- Patients 27%
- Physicians 19%
- Admin/medical-technical staff 16%

Real-time communications provides better outcomes, increases patient satisfaction and supports shorter stays and early discharge.

Create better central and care unit patient welcome and greeting

Care providers need to convey an appropriate welcome and greeting at all levels. A poor delivery may generate patient frustration and harm the hospital's image. With the emergence of multiple social networks that constantly assess hospital and clinic performances, it is recommended to take the following measures:

- Centralize the function of answering the call, and create better outcomes for callers and for the attendant team
- Provide your 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 room number
  - ¬ Reach the right person, as multiple menu options, announcement, direct call or supervised call
  - ¬ Offer an intuitive programming interface usable by multiple administrators, each with their own-part view isolated, such as the greeting recording customization for a care unit

A typical use case in France

With hundreds of thousands of in-patient and millions of out-patient consultations every year, large hospitals need the best possible patient greetings that provide accessibility and support a reputation of excellence. A customized greeting solution is designed to fit their specific traffic pattern.

Recommendation 2

Design a patient appointment process that off-loads teams by automating appointment reminder notices

Patient no-shows are costly for care providers, in terms of waste of money and operational efficiency. A study (1) shows that while pediatric clinics might see a no-show rate of below 5 percent, urban family hospitals and clinics often see no-show rates between 10 and 20 percent. And in some outpatient and surgical clinics – for procedures such as colonoscopies, endoscopies, pulmonary tests that require special prep or diets by the patient – have even higher rates. In each week, a 50 percent no-show rate - while quite high – is not unheard of at some specialty clinics.

- Off-load your reservation process by automating your patient appointment process through a voice portal
- Leverage the contact center infrastructure by having it send focused appointment reminders and medical instruction reminders (for example: do not eat/drink something) through media such as voice calls, SMS or email, avoiding “No shows”, when the patient forgets his appointment and “Not ready” where the patient shows up but isn’t prepared for the procedure

Location: Chicago, Illinois, USA

Advocate Health Care USA is one of Chicago’s largest employers with more than 35,000 associates including 6,000 affiliated physicians and nearly 10,000 nurses.

To meet the need of an increasingly digital hospital, Advocate Health Care has rolled out a full contact center infrastructure including a voice portal that optimizes the patient appointment process.

Recommendation 3

Provide a healing experience by using the technologies that makes patients feel at home

In an economy where people share billions of impressions every day, innovate to allow patients to have a better experience and ensure their satisfaction.

- 95% of patients are willing to pay for entertainment or premium food services (2). Integrate access to hospital services, TV, and internet access with telephony access
- Generations X, Y and Z as well as almost everyone else, are smart phone addicts. Equip them with a “bring your own device” (BYOD) application that becomes their hospital phone while providing them access to hospital services
- As ambulatory surgery develops, make less acute patients reachable with a mobile softphone application in the hospital even if they haven’t been assigned to a room
- VIP patients and relatives require the best room automation services to control heating, ventilation and air conditioning (HVAC). Using the room’s touch screen phone, it’s possible to centralize control of the room’s appliances and benefit from hospitality services

Location: A hospital on the French Riviera, focused on superior patient experience

2,500+ employees with more than 155,000 inpatient days and nearly 200,000 external consultations.

The hospital offers patients care from highly qualified professionals, whether for a check-up or as an inpatient. Patients benefit from ultra-high-performance equipment in a luxury setting. Patients’ relatives can be offered VIP rooms. They benefit from a customizable patient experience where all room controls and hospital services are a touch of a screen away.

Recommendation 4

Facilitate physicians' life with collaboration and real-time communication systems

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

- Physicians, nurses and therapists need to agree on patient protocol through in-person and virtual meetings:
  - ¬ Plan real-time collaboration to empower multidisciplinary team meetings (MDT) with voice, instant messaging (IM) as well as screen and documents sharing
  - ¬ Enable physicians to be reached through several devices in and out the hospital through a unique professional number
  - ¬ Enable non-resident physicians to be reached as well with an application that can be added to their smart phone, which will then integrate them into the communication system

Location: Sydney, Australia

Liverpool Hospital needed a robust, highly available fixed and wireless data network that can support current and emerging clinical, corporate and innovative collaboration applications and services.

Recommendation 5

Improve staff reactivity via focused notification

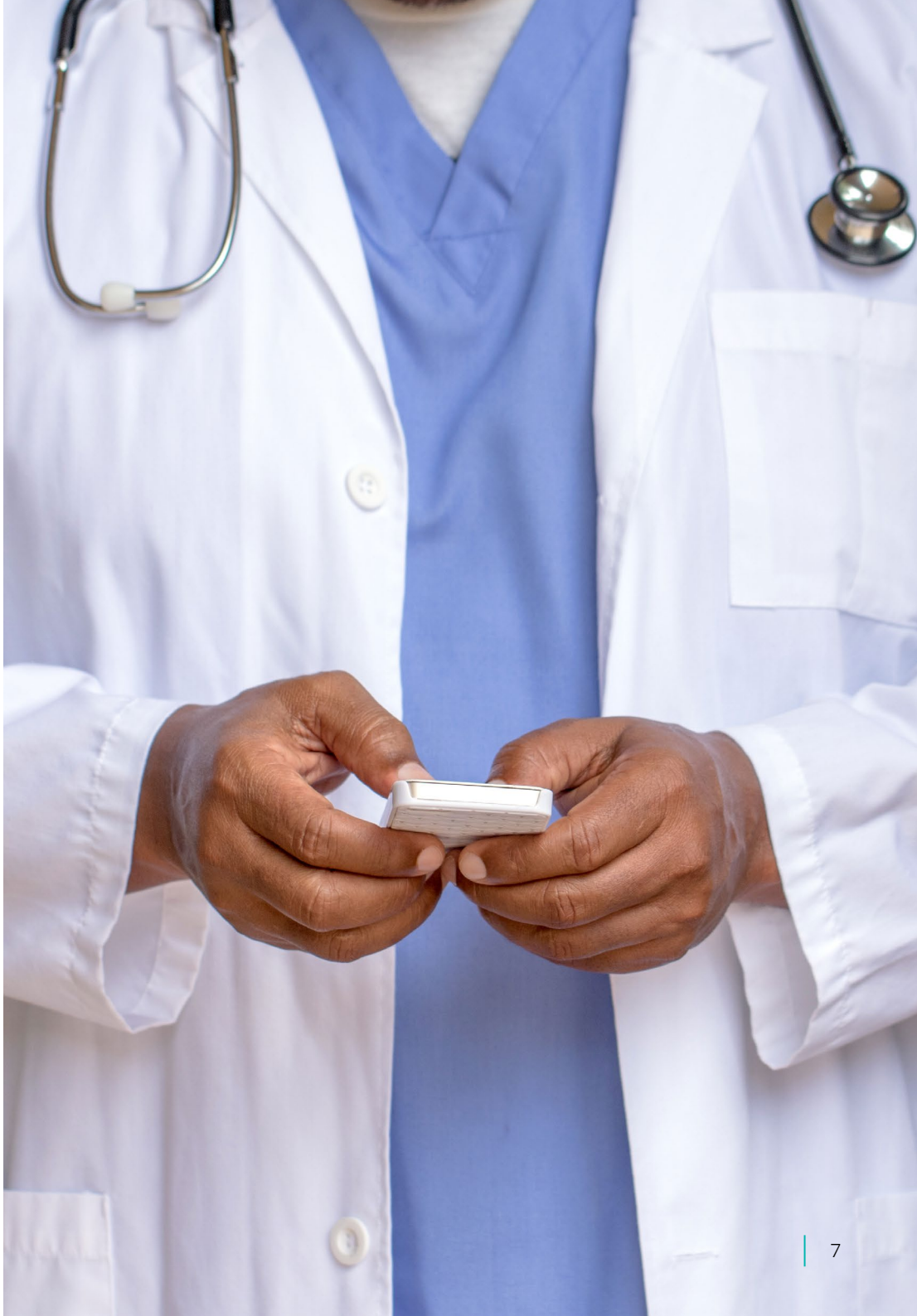
More effective communications enable clinical staff to devoting more time with patients and help reduce lengths of stay. According to an Accenture study (3), U.S. hospitals “waste” approximately $12 billion annually due to poor communication among care providers. Of that money, 40 percent, or about 5 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 due to wasted physician and nurse communication time and potential increase in length of stays (3). 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, patient wandering detection, etc.
- Offering situational awareness - such as location, calendar or availability
- Connecting IoT devices and wearables tracking patient’s medical condition (for example: presence sensor, camera, smart-bed, floor sensor, etc.)

Location: Stockholm, Sweden

The Läkarhuset Odenplan 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.



Recommendation 6

Protect people and assets

Hospitals, over the past several years, have experienced an increase in the number of violent acts against people, harming staff, caregivers, patients, as well as jeopardizing assets: theft, destruction, and intrusion into protected zones.

Hospitals also have had to consider the terrorist threat; they must be prepared to manage a potential attack and protect their sites, patients, visitors and staff, and get prepared as well 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 (fire sensor, contact-type detector, security camera, etc.) throughout the building to launch the appropriate notification services
- Manage human communication to 911/112 (public safety answering point) including the calling device localization
- Enable audio recording on demand
- Prepare for mass casualty incidents (MCI) and deploy MCI solutions combining emergency conferencing and team mobilization via notification services
- Notify a limited number of persons (for instance caregivers, security guards) and send mass notifications to reach as many people as possible, via audio broadcast messages and text messages on hospital displays
- Identify the alarm location through way finding services
- Play pre-configured routing scripts with specific greetings to hospital callers to regulate a sudden patient flow in case of an emergency situation (major road traffic accident, natural disaster or act of terrorism)

Location: A large hospital in Luxembourg

This hospital includes 2,000+ employees with 250+ physicians and treats more than 100,000 inpatients per year.

They improved their medical processes by deploying a unique notification system to deliver various services. This system offers them the capability to mobilize the right staff and experts for each emergency entrance, to handle nurse calls including management of escalation, control access to operating rooms during surgeries and provide isolated staff with lone worker protection.

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

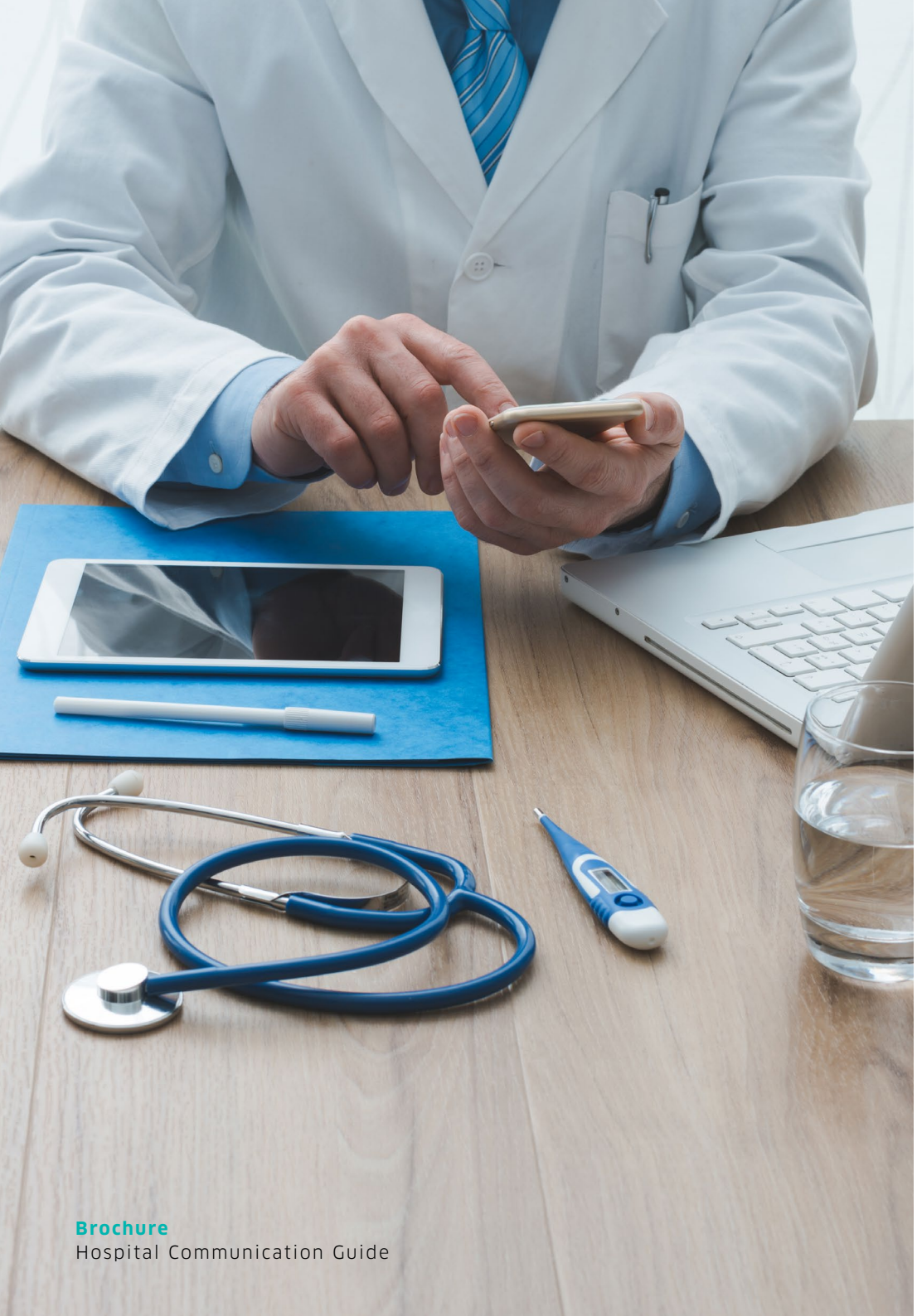
Whether for a single clinic or a hospital with hundreds of locations, care providers require a robust and resilient telecom infrastructure. Along with the electronic health record, mobility is also at the heart of the healthcare transformation; mobility enables a fluid clinical workflow.

- Plan a robust core telephony infrastructure with a very short RTO
- Create a system that can be fully virtualized and 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

Typical use case

A public health system comprising many hospitals as well as other facilities for aged care and community services across 200+ sites.

Its core telecommunication infrastructure serving more than 30,000 users relies primarily on a real-time communication system that has the smallest footprint. This enables real time core communications across a very wide geographic area. The interconnected servers provide a fully transparent view for the end users. A single image across servers also simplifies the network configuration and monitoring. This real-time communication infrastructure is responsive and highly available with a very short recovery time objective.



Recommendation 8

Design the network capable to natively support 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 investments made on electronic medical records (EMR), picture archiving and communication systems (PACS), clinical imaging systems and IP communication can only be realized if those assets connect people reliably, securely and with very high performance.

- Integrate unified access that natively powers VoIP phones, prioritizes and differentiates real-time applications over those more tolerant of latency and jitter
- Deploy a WLAN infrastructure supporting 802.11ac as most of devices in healthcare depend on being mobile – user devices such as VoIP phones/apps, CoWs (computer on wheels), clinical devices like infusion pumps, mobile image capture (radiology, 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 communication system
- Secure IoT platforms for smart medical devices, location-based services, building management and security surveillance
- Enable location-based services such as interactive maps and navigation tools
- Provide patients and visitors with way-finding services to help them find parking spaces, hospital rooms, nurse stations, food service or emergency exits

Location: Shenyang, China

Shenyang Shengjing Hospital is a very large hospital with 4,750 beds. It is a leading hospital in digitalization and hospital information system (HIS) application in China. They rolled out a network and communication system (voice and contact center) 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 be close to 99% while reducing the hospital's operational costs by 0.2 million ¥ each year.

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 devices interact and connect with each other in healthcare environments, helping promote better care, reduce costs and improve outcomes. One of the keys to the adoption and generalization of such services is the connectivity integrated into business processes.

- Digital transformation requires reliable machines to connect:
  - ¬ Bots and Artificial Intelligence
  - ¬ Smart sensors and other IoT connected devices
  - ¬ Portal integrating communication and multimedia collaboration systems
  - ¬ Big data & analytics
  - ¬ Location-based services (geofencing, way finding, asset tracking)
- Plenty of business digital applications are flourishing around the world but, in many cases, those applications don't integrate connectivity among patients, caregivers and business processes. This connectivity can be delivered via:
  - ¬ 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 staff:
  - ¬ Tele consultation
  - ¬ Inpatient self-services
  - ¬ Ambulatory care applications
  - ¬ Patient follow-up applications
  - ¬ EMR/caregiver/patient portal
  - ¬ Social network for clinical ward

Location: ALE, France

As a first step, we consolidated our vision and verified the relevancy of our Alcatel-Lucent Rainbow CPaaS, and Stellar Location-Based Services (LBS) APIs by participating in Hacking Health Camps that aim to break down health innovation barriers. In support of this step, in March 2018, we took part in the largest European health Hackathon in Strasbourg. Multiple prizes were awarded by ASIP Santé, Alsace Angels, and Mylan laboratories to three projects that included ALE solutions. These were:

- Directional guidance for visually impaired people in a hospital environment based on ultrasound sensors technology coupled with location-based services
- A virtual waiting room application based on a chatbot
- An application that mobilizes workplace first-aid responders enriched with location-based services

Our second step is to collaborate with specialized start-ups and software developers in the hospital industry, to include the connectivity element to their business applications. One example of this type of successful partnerships is the award-winning digital perioperative follow-up application, Sovinty, which was developed by ALE and Clepsydra in response to AP-HP and CHU de Nantes call for expression of interest for the Hospital of the Future.

Optimize the care pathway

The Alcatel-Lucent Enterprise communication and converged solution optimizes the care pathway for patients and clinical staff as it provides:

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

With the Alcatel-Lucent Enterprise communication suite, care providers benefit from differentiated solutions and services practices. Their reliability, performance and resilient environments allow care providers to focus on those who matter the most – their patients.

Solutions for Recommendation 1

OmniPCX Enterprise attendant solutions (4059 Extended Edition or 8058s/8068S/8078s in attendant mode) with customized Soft Panel Manager for metrics display

Visual Automated Attendant (Interactive Voice Response system)

Solutions for Recommendation 2

OpenTouch Contact Center Standard Edition & OTCS plugin managing multi-media format (SMS, email, etc.…)

(1) No-shows cost health care system billions But clinics, hospitals may be as much to blame as patients – February 2013 Bill Toland Pittsburgh Post

Solutions for Recommendation 3

Integration of real time communication with hospital services such as e-Concierge IP TV, triple play, Mobile Guest Softphone and Smart Guest Applications

(2) Hospinnov “le divertissement et les loisirs à l’hôpital” November 2015

Solutions for Recommendation 4

Collaboration systems:

- Cloud solution: Rainbow UCaaS (Unified Communications as a Service)
- Customer Premises Equipment solution: OpenTouch Multimedia Services

One number for several devices and IP Desktop Softphone Visitor Onboarding

Solutions for Recommendation 5

OpenTouch Notification Service, WLAN infrastructure, WLAN handsets and notification via a Smartphone application, DECT infrastructure and handsets range including man down capabilities

(3) Accenture 2013 “A call to action: Overcoming Communication Challenges in Hospitals”

Solutions for Recommendation 6

OpenTouch Notification Service including Rainbow connectivity for technical alarms, Emergency Notification Server for 911/112 calls, OmniPCX RECORD Suite, Alcatel Voice Broadcast System and Visual Automated Attendant

Solutions for Recommendation 7

OmniPCX Enterprise Communication Server

Solutions for Recommendation 8

OmniSwitch for the access and core network infrastructure , IoT containment, OmniAccess for WLAN infrastructure, including OmniAccess Stellar access points and OmniAccess Stellar LBS (Location-Based Services), converged with OmniPCX Enterprise

Solutions for Recommendation 9

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

OpenTouch Notification Service can interwork with Rainbow platform to integrate with medical equipment, such as Drager, Mindray, Philipps, General Electric.

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

Additional information
https://www.al-enterprise.com/en/industries/healthcare

Blogs for more perspective
https://www.al-enterprise.com/en/blog

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