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COMMUNICATING IN A HOSPITAL

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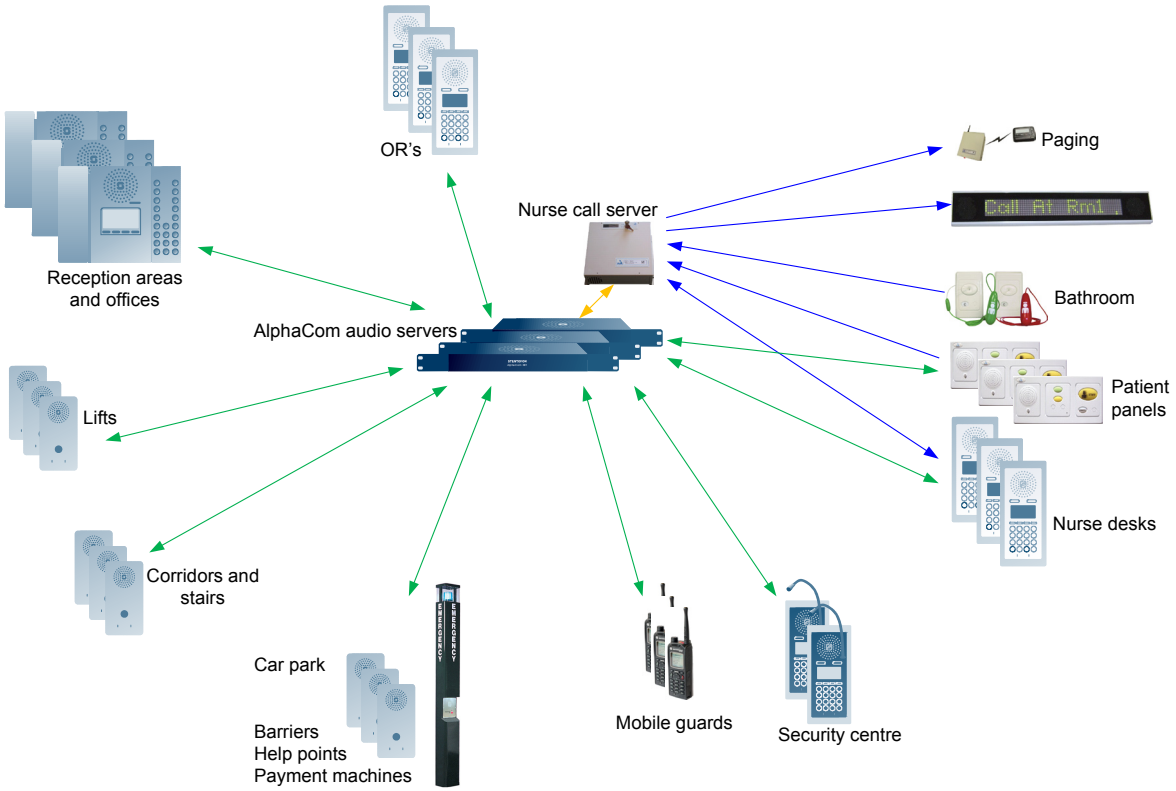
Introduction

Many actions which are taken in a hospital are critical. A good communications system is vital in a hospital environment such that requests for help and support can be made quickly and questions and answers are understood clearly.

The communications system must be easy to use and self-explanatory such that in an emergency it is immediately clear which button to press to get the help which is needed; it shall be easy to use for staff, patients and visitors. This will enable the staff to give the best possible care to the patients.

It must also be considered that the condition of patients may deteriorate at any location on the hospital premises; some patients may even drive themselves to the hospital unsuspecting of what is wrong with them. It is therefore very important that the total communications system is integrated into one coherent system and not served by a multitude of disparate systems. Somebody at the entrance barrier of the car park must be able to call for emergency medical help and a guard doing his security round must also be able to contact the medical staff.

COMMUNICATION REQUIREMENTS



A hospital has the need for internal communications for the following areas:

- Nurse call with voice capability from nurses to patients
- Operating Rooms
- Reception areas and offices
- Lifts, stairwells and corridors
- Car park
- Security – control room and guards with radios

Nurse call

Nurse call systems are for patients to be able to contact the nursing staff, but also for nursing staff to be able to call for backup. This is normally done via pull cords and switches at the bed, in bathrooms and other locations on the ward where patients are likely to require help. Signalling is done to the nursing staff via corridor displays, lamp signalling and/or pocket paging. The protocol is that a nurse must always go to the patient when the patient has pressed the button, but in order to make the work flow more efficient it can be very useful to have an idea about the need of the patient. A voice based nurse call system will allow the nurse to talk to the patient. If the patient is able to clearly state his or hers requirement, the nurse can already bring the items which will be needed with him/her.

Intercom units serving as nurse desk station can be located in all staff rooms on a ward. They must clearly indicate all calls in the ward and shall make it easy for the nurse to contact the caller. As with any part of the nurse call system, calls must not be deleted from the intercom display merely because the nurse has spoken to the caller, calls must only be deleted from the display once the medical staff leaves the patient; the intercom station acts as another corridor display.

Operating room

During a procedure a doctor may wish to confer with a colleague who has specific knowledge in a certain medical area or with the nursing staff on the ward where the patient came from. The doctor should then be able to have a handsfree conversation with very clear audio to make absolutely certain that there are no misunderstandings; It should be as if the other person was with him/her. Call set up shall be very fast and easy, where the locations most likely to be needed to be contacted are available on pre-programmed short dial keys. An intercom unit in an Operating Room must be able to withstand aggressive cleaning agents and shall be completely flat, even without holes for microphone and loudspeaker to make it possible to sterilise the unit thoroughly.

Lifts

In most countries every lift must have an intercom which can be used when the lift gets stuck between floors. In many countries there are strict regulations about call signalling and handling when a passenger calls for help in such a case. In a hospital there is an additional need to be able to link the call to medical staff, or even make it possible to call medical staff directly, this especially for those lifts which are used for the transfer of patients.

Car park

For many hospitals, car parks provide an additional revenue stream from parking fees. Payment machines and entry and exit barriers must have an intercom in case the machine or the barrier does not operate. The communications system design shall be such that calls from these points can be routed to medical staff. Many car parks are that large that often help points are provided for people to be able to call for help when they feel insecure, or even when they cannot find their car. Also for these points, a communication capability direct with medical staff must be provided.

Reception areas, Doctors' offices and hospital administration

Staff in reception areas of the different clinics shall be able to do a local announcement into the waiting area to call the next patient to see the doctor. Reception and doctor office must be linked for an efficient way of communicating between the doctor and the reception, while the staff may also need to contact the hospital administration offices. The doctor must be able to be contacted directly from the Operating Rooms. All these requirements call for an intercom system integrated with all other parts of the communications system.

Unfortunately staff in the reception area is sometimes verbally abused, especially in the Accident and Emergency department. Intercom units in these areas must therefore be equipped with aggression detection. This will enable the system to automatically call for backup and direct CCTV cameras to the relevant area.

Safety and security

Most hospitals have their own security staff. Guards will be equipped with radios to be able to stay in contact with the security. Intercom stations in corridors and stairwells are part of the security communications system. They can be used by anybody in need of help but can also be used by security personnel in case of a calamity. Of special importance are communication points in disabled refuge areas where people who are not able to use the stairs can assemble in case of an evacuation of the premises.

Due to rising crime it shall be considered to enable the intercom units in certain locations for glass break, car alarm, aggression and/or gunshot detection. The total communications system shall be connected to the hospital security management system such that security staff can easily identify where an incident is reported from and what kind of incident it is. Through this integration a PTZ CCTV camera can be pointed towards the intercom and a monitor window can automatically pop-up on the guard monitors. Through such an integration the intrusion detection system can be linked to the intercom server and a voice message can be played to the area where somebody may try to break in.

Glossary

Audio analytics – a set of algorithms run on an audio data stream to detect events. There are different algorithms available

- Aggression detection – detects changes in speech patterns which indicate aggressive behaviour of the speaker
- Gunshot detection – fire arms produce a very specific sound pattern when fired
- Glass break detection – the intercom unit detects the specific sound pattern associated with breaking glass; Glass can be of different thicknesses, can be wired or laminated
- Car alarm detection – car alarms make a specific sound when triggered; intercom stations in car parks can be enabled to detect this sound and security personnel can be allerted