



Communication Systems, Inc

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White Paper

Consumer versus Hospital Grade Televisions

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Introduction

Whether you're replacing legacy televisions or installing new ones, purchasing new healthcare-grade televisions can be a major investment. Those tasked with finding cost-reducing solutions may be tempted to consider off-the-shelf consumer televisions since they are relatively inexpensive compared to hospital-grade models.

Consumer-grade equipment works well in homes, why wouldn't it work just as well in a healthcare facility? After examining how televisions are used in hospitals versus in a home, it becomes clear that there are major differences.

There are considerable risks for the patient and the hospital when using consumer-grade televisions in a healthcare setting.

Hospital-grade TVs Can Improve Patient Satisfaction

Today's hospital-grade television is more than a patient amenity, it's an important part of the total patient experience. An increasing number of hospitals are using bedside TVs to deliver educational material— especially post-hospital care instructions. When delivered via television, patients can view the information at their convenience as often as they wish and in the company of those who will be assisting them once they return home.

Better informed patients typically equate to more satisfied patients which can result in better HCAHPS scores. And since 30% of a hospital's value-based performance payments will be tied to HCAHPS scores in fiscal year 2013, HCAHPS scores are becoming increasingly important.

Consumer-grade TVs Lack Necessary Infection Control Features

Consumer-grade televisions can be a breeding ground for dangerous bacteria and viruses. Ventilation openings and speaker grill surfaces on consumer-grade equipment are difficult, if not impossible, to effectively sanitize to hospital standards.

Hospital-grade televisions, on the other hand, are specifically designed to be repeatedly sanitized. Proper sanitation is critical in preventing hospital acquired infections. And when hospital acquired infections are reduced or eliminated altogether, patients are safer and hospital re-admission numbers are reduced.

Hospital-grade TVs Have Necessary Hospital Use Features

It's standard procedure for hospital-grade televisions to work with pillow speakers and call systems. These features allow patients to control the TV and call the nurses' station without ever having to leave their bed.

Most hospital-grade televisions enable clone programming which allows settings to be saved digitally and quickly loaded to other sets. This feature greatly reduces set up time.

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Hospital-grade TVs Have Necessary Hospital Safety Features

Hospital-grade televisions are designed to be used up to 24 hours a day. The average consumer model is designed to be used only 8-12 hours a day. A key design difference is how they handle heat. Healthcare-grade sets dissipate heat more effectively than consumer sets which rely on being powered off periods for cool down.

Healthcare-grade televisions operate at a lower temperature (25°C versus consumer-grade sets which can operate at 60°C) and have a lower AC current leakage. These features reduce the risk of patients being burned or shocked.

Healthcare-grade televisions are constructed to withstand twice the force of a typical consumer model. Healthcare televisions are also designed so that spilled liquids or foreign objects cannot easily enter the set. And, healthcare-grade televisions have an AC plug with a grounding conductor pin to further reduce the possibility of patient shock.

How to be Certain It's a Hospital-grade TV

Products sold in North America are tested by an accredited laboratory to recognized safety standards. These standards address product safety, construction and safe performance. The current safety standard for television and audio products is UL6500 ó Standard for Audio/Video and Musical Instrument Apparatus for Household, Commercial, and Similar General Use. UL6500 is actually a North Americanized version of the International Electrotechnical Commission (IEC) Standard 60065, Audio, Video, and Similar Electronic Apparatus ó Safety Requirements.

Both standards contain additional requirements for products that are used in specialized applications which include healthcare facilities. Products tested for these specialized applications carry classifications indicating compliance to the additional and more stringent requirements.

Consumer versus Hospital Grade Televisions

The following comparison chart between Consumer-Grade and Hospital-Grade product reveals some very important differences.

Topic	Consumer	Hospital-grade	Comments
Maximum Operational Temperature Rise	60° C UL6500.7.1.5	25° C UL6500.H.7.1.5	Plastic enclosures that can be touched are required to operate at a much reduced temperature in the hospital environment. 60°C = 140°F.
Maximum AC Leakage Current	500 microamperes UL6500.9.1.1	100 microamperes UL6500.H.9.1.1	AC powered products that can be touched are limited to a much lower leakage (shock) current.
Spilled Liquids & Foreign Objects	4mm Enclosure Openings allowed on any Surface. UL6500.9.1.8	No Enclosure Openings allowed on Non-Vertical Surfaces UL6500.H.9.1.8	Spilled liquids and foreign objects can more easily enter a consumer product increasing the risk of shock or fire.
Signaling and Nurse Call Controls	Not Supported	Supported - Must use a UL1069 Listed Product UL6500.H.1.1.1	Signaling and Nurse Call controls used with audio and video products must meet additional reliability and safety criteria. Consumer grade products have no such requirement.
Enclosure Impact Withstand	3.5 Joules UL6500.12.1.3	7 Joules UL6500.H.12.1.3	The enclosure used in the hospital grade product is required to withstand twice the force from an impact. The hospital product would prove more durable and less easy to damage.
Control Transformer Construction and Grounding	Transformer meets consumer construction and safety requirements UL6500.14.3.4	Transformer construction and performance must meet stringent UL2601-1 Hospital safety requirements UL6500.H.14.3.4	The hospital grade product's transformer that powers connections for external accessories must meet stringent hospital requirements.
Power Switch	Single Pole Power Line Switch allowed UL6500.14.6.1.1	All Pole Power Switch required UL6500.H.14.6.1.1	The hospital-grade product's power switch opens both conductors of the power line completely disconnecting all power. If a consumer product with a single pole power switch were connected to a mis-wired wall outlet, power would not be completely switched off leaving a possible shock or fire hazard.
Power Cord with Grounding Wire	Not Required UL6500.15.1.1	Third Wire Grounding Conductor Required UL6500.H.15.1.1	The hospital-grade product uses a dedicated grounding conductor to safely carry away any fault currents. The consumer product does not offer a safety ground.
Hospital Grade AC Plug	Not Required UL6500.15.1.1	Required UL6500.H.15.1.1	The hospital-grade plug offers improved mechanical properties that provide stronger connection, visual polarity identification, and a grounding conductor pin. The consumer product plug lacks these stricter requirements.
Wheels and Casters	No Minimum Size Required UL6500.17.8	10 cm Minimum Size Required UL6500.17.8	Wheels or casters on an apparatus or cart must meet a minimum size requirement for hospital use. The consumer product can use a smaller wheel increasing the chances of tipping and possible injury.

Consumer versus Hospital Grade Televisions

Regulators such as the National Fire Protection Agency (NFPA), Joint Commission on Accreditation of Healthcare Organizations (JCAHO), and the National Electrical Code (NEC) recognize the importance of equipment safety and have issued detailed regulations. The importance of using appropriate safety listed products for patient care facilities is emphasized. A product identified as appropriate to use in a healthcare facility bears the Hospital Grade or Healthcare listing emblem.



Conclusion

There are risks and liabilities associated with consumer-grade television and audio equipment. Consider the legal consequences of a patient receiving shock and injury from a consumer-grade television used in a healthcare environment. Hospital-grade products enhance safety, protecting both the patient and hospital. Consumer-grade televisions and audio equipment can be a breeding place for dangerous bacteria and viruses. Hospital-grade televisions are specifically designed to be effectively sanitized to help prevent the spread of disease.

Today's hospital-grade television is more than a patient amenity; it is an important factor in the total patient experience. Hospital-grade televisions have become scalable delivery systems for educational content. Audio video presentations improve information retention resulting in a better patient experience which can impact HCAHPS scores.

PDi provides the full spectrum of healthcare-grade televisions and accessories. Healthcare television equipment is our only business. Our national network of qualified distributors can assist you in specifying and installing scalable audio visual systems that not only meet today's requirements but are flexible enough to address your needs well into the future.

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