ION Medical Safety

PRECISE Surgical System™

Overview

Preventing Medical Errors, Sentinel Events and Patient Harm through the PRECISE Surgical System™ the World’s First Healthcare Learning System
ION Medical Safety – Saving Your Life
Preventing Medical Errors, Sentinel Events and Patient Harm through Advanced Technology for Healthcare Providers Worldwide

Located in Las Vegas, Nevada, ION Medical Safety operates as a 501 (c)(3) Charitable Non-Profit organization. Our goal is to educate and increase public awareness concerning Sentinel Events and Patient Deaths, while engaging public and private donors to champion our vision. In 2018, we will conduct an Initial Coin Offering (ICO). This will provide the funding necessary to begin design and development of the PRECISE Surgical System™ and offer an ICO participation option.

The PRECISE Surgical System™ will continuously deliver high value reliable healthcare for Academic Medical Centers, Acute Care Hospitals and Ambulatory Surgery Centers at minimal cost. It will decrease surgical operational risk and lower health care costs through decreased malpractice insurance costs and minimize and eliminate medical errors, sentinel events and patient harm improving the nation’s health.
ION Medical Safety is developing the PRECISE Surgical System™ the World’s First Healthcare Learning System to Minimize and Eliminate Medical Errors, Sentinel Events and Patient Harm.

The PRECISE Surgical System™ will Revolutionize Surgical Teamwork Efficiency, Effectiveness, and Communication.

Surgical Teams will Increase Patient Safety Deliver Personalized Patient Centered Care and Continuously Save Lives.

**PRECISE Surgical System™**

Is a comprehensive and highly intelligent system that works in real time. It prevents errors immediately by monitoring all relevant inputs in the delivery of patient-centered care surgical processes including Diagnosis, PreOp, Surgery and PostOp processes. The system does not act alone. It interfaces to multiple systems including the Electronic Health Record (EHR) and analysis systems as well as intelligent diagnostic systems monitoring each action taken as a patient is undergoing a surgery in real time. Diagnostic and predictive information is continually updated to change rapidly the prognosis and diagnosis of a patient immediately as the real time data is acquired and made available to the system. The surgical team is instantly alerted of any relevant change as the PRECISE Surgical System™ monitors all instrumentation, actions, materials and other relevant inputs. This system is patterned after the highly successful aviation safety and air traffic control system. The critical nature of both operating room and air traffic safety procedures are highly analogous. The surgical team is like the flight team with the head surgeon as captain of the ship. The air traffic control system is the PRECISE Surgical System™, including the expert teams monitoring the surgery through the real time remote operating room vision and data systems. Like the Air Route Traffic Control Centers (ARTCC), the surgical team is provided with real-time information and suggestions as the surgery (flight) is monitored and proceeds. The PRECISE Surgical System™ is designed with a strict system of procedure and authority that oversees all surgical processes.
Each piece of equipment is certified with strict quality procedures and service and maintenance is kept current. All personnel utilizing the system are trained, certified and kept current. Clearance to proceed is given at each surgical step and phase of the operation (flight). Each procedure and action is accompanied with mandatory checklists to avoid human error and oversight. In order to accomplish its purpose with such a high level of precision, the PRECISE Surgical System™ first ensures that all EHR and appropriate patient history, current medication have been reviewed for accuracy and currency before proceeding to the next step. Each part of the system is certified & certification is kept current with all available data.

**WHY? - PRECISE Surgical System™**

**Journal of Patient Safety Study - Medical Errors Now 3rd Leading Cause of Death**

In September of 2013, the Journal of Patient Safety released an updated landmark study referencing the 1984 Institute of Medicine (IOM) “To Err is Human” report indicating 98,000 Americans die each year from medical errors. The new study "A New, Evidence-based estimate of Patient Harms Associated with Hospital Care" by John T. James, PhD indicates the IOM study under estimated the number of patient deaths caused by medical errors. Since the original IOM study was 30 years old the Journal of Patient Safety updated the estimate developed from modern studies published from 2008 to 2011. The new study estimates as many as 440,000 patients die every year (over 1,200 patients a day) from preventable medical errors in America’s hospitals.
The PRECISE Surgical System™ is designed with the latest technology. Where appropriate, older legacy software or instrumentation systems will be able to be incorporated into the system. Older systems can be incorporated with a “service oriented wrapper” that will make them appear as new technology services to the system, allowing them to be incorporated quickly and relatively simply through straightforward data, service and protocol mapping techniques. This will be possible because the system is modeled after the Service Oriented Architecture (SOA) principle and the concepts behind the Internet of Things (IoT) model. However, the open Internet itself will not be a required part of the system. The system will incorporate a secure virtual private network (VPN) that cannot be

- **Advanced surgical process technologies**
  - PRECISE Surgical System™ Command Center
  - Artificial Intelligence (AI) / Cognitive Computing
  - Knowledge Network Learning System
  - Cloud Computing Data Center
  - Medication Robotics
  - Tele-Presence Robotics
  - Internet of Things (IoT) – Wearables
  - E-Signature Biometrics
  - Biometric Patient Identification
  - Voice Recognition
  - Advanced Imaging - Software Integration
  - Electronic Health Records (EHR) - Software Integration
  - Surgical Technology Minimal & Non-Invasive – Software Integration

- **Technology architecture**
  - Artificial Intelligence (AI) / Cognitive Computing
  - Cloud Computing Data Center
  - Service Oriented Architecture (SOA)
  - Block Chain
  - Optical Networking
  - Virtual Private Network (VPN)
  - Learning Healthcare System
  - Research & Development Databases
  - Crowd Sourcing
  - System Procedure & Authority

- **Regulatory compliance**
  - The Joint Commission
  - Centers for Medicare and Medicaid Services (CMS)
  - Federal Drug Administration (FDA)

- **Advanced quality systems**
  - International Organization for Standardization (ISO)
  - LEAN and Six Sigma (6σ)
  - Capability Maturity Model (CMM)

- **Quality improves over time through multi-venue experience**
compromised should there be a break in any Internet connection. Nevertheless there will be several secure network mechanisms available to connect to both intelligent diagnostic and medical information systems but also be connected in real time to external world-class surgeons or teams that may assist in or learn from important surgical procedures. The PRECISE Surgical System™ will incorporate advanced artificial intelligence (AI) / cognitive computing so that the system can interpret data and 3D images and make suggestions to the team in real time. The system will continually learn as it operates in various environments.
**PRECISE Surgical System™ Cultural Benefits**

The healthcare industry is behind other industries such as airline, manufacturing and transportation when it comes to safety. Even with persistent warnings concerning patient safety and research evidence indicating high medical error rates, the healthcare industry struggles to change and achieve the ability to ensure and provide a consistently safe environment. The following eight cultural barriers need to be overcome by the healthcare industry if they are going to achieve the promise of reducing medical errors and delivering a truly safe environment for all patients.

1. **Error Acceptance**
   - **Problem - Acceptance of errors as system complexity grows**
   - **Solution - PSS will minimize and eliminate systemic errors by design**

2. **Accountability**
   - **Problem - Dysfunctional external accountability**
   - **Solution - PSS will facilitate regulatory accountability & auditing**

3. **Oversight**
   - **Problem - Lack of comprehensive internal oversight**
   - **Solution - PSS will provide proactive continuous monitoring of all surgical procedures**

4. **High Reliability**
   - **Problem - Slow introduction of high-reliability principles**
   - **Solution - PSS will deliver best practices and behaviors for the development of a patient safety culture**

5. **Fear**
   - **Problem - Fear of retribution**
   - **Solution - PSS will eliminate fear by providing clinicians and patients with surgical process transparency and system accountability**

6. **Failure**
   - **Problem - Personal failure is unacceptable**
   - **Solution - PSS will minimize and eliminate systemic errors by design and increase confidence in reporting errors**

7. **Urgency**
   - **Problem - Overly developed sense of urgency**
   - **Solution - PSS will provide system procedure & authority maintaining best practices in patient care delivery**

8. **Standardization**
   - **Problem - Standardization is perceived as a burden**
   - **Solution - PSS will deliver standardized surgical processes and procedures resulting in high-quality patient-centered care**
PRECISE Surgical System™ Clinician Benefits

- Increased Clinical Performance while Optimizing Patient Safety
- Increased Clinician Communication and Coordination while Decreasing Stress
- Enhanced Clinician Accountability, Ethics, Etiquette, Appearance and Attitude
- Increased Clinician Teamwork, Ownership, Service and Commitment to Growth
- Provides System Team Training for Surgeons, Nurses and Clinical Staff

The PRECISE Surgical System™
- Eliminate Systemic Errors by Design
- High Reliability & Continuous Monitoring
- Best Practices & Transparency
- Standardize Surgical Processes & Procedures
- System Procedure & Authority
Currently, no for-profit organization has created or attempted to market a system similar to the PRECISE Surgical System™ for the healthcare industry. The reason for this is healthcare technology budgets are extremely limited. As a charitable non-profit organization, ION Medical Safety will raise funds to develop, implement and maintain the PRECISE Surgical System™. We will then make it available to healthcare providers at ZERO COST (Except Minimal Fees). This unique approach removes the financial adoption barriers that healthcare organizations face when trying to minimize and eliminate medical errors, sentinel events and patient deaths.
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