Item Oxygen has been working in the medical sector for almost 20 years, and have established ourselves as a requested and reliable name for technical and medical gas plants as well as for remote diagnosis and therapy systems.

The company’s mission is to provide a “turnkey” solution in terms of design installation, assistance and maintenance for compressed medical gases pipeline distribution systems and vacuum, anaesthetic gases scavenging disposal systems and medical gas supply units.

An elevated degree of professionalism and technical specialities of the team ensure cutting edge solutions with high technical standards in:

- Design/Installation/Maintenance of gas production, gas distribution and gas supply plants for medical, pure and technical gases and anaesthetic gas vacuum and scavenging.
- Design/Installation/Maintenance of water treatment plants for dialysis
- Design/Installation/Maintenance of plants for cryobanks
- Sell/Supply equipment and systems for the distribution and supply of medical gases and anaesthetic gas vacuum and scavenging
- Maintenance of biomedical equipment
- Technical Consultation in accordance with the norms for gas production, gas distribution and gas supply plants for medical, pure and technical gases and anaesthetic gas vacuum and scavenging
- Produce/Sell bed head units
- Produce/Sell oxygen concentrators
- Manufacture of electro-medical devices and telemedicine systems for protected de-hospitalisation and intensive outreach therapies
- Design, Implementation, Support and Maintenance of technological plants
- Innovative Research & Development in the technology, electro-medical and biomedical sectors

Item Oxygen is UNI EN ISO 9001:2008 and UNI CEI EN ISO 13485:2012 certified and is authorised, as a manufacturer of medical devices, to apply the CE symbol to the manufactured devices.

Thanks to the experience gained from working within the technical and medical gas sectors, and close collaboration with the National and European Health Services, Item Oxygen has been able to develop and expand on its research and development programmes, design and production of remote diagnosis and therapy systems.

Various national and international patents have been filed for innovative products such as the H@H hospital at home eHealth system and H@H smartmews clinical decision support system.

Item Oxygen’s main customers are:
- Public health service
- Hospitals
- Private Clinics
- Private Companies and Home Care Providers

Item Oxygen has a clear vision:

- Improving the quality of life by reducing the distance between healthcare professionals and the patients
- The patient is at the centre – everything they need by their side
- Transfer data, information and care, not the patient

In order to evolve as a business and keep in line with our vision, we recently had an organisational restructure. Following on from this restructure Item Oxygen has defined 3 core divisions within our business.

Item Oxygen offers Technical Design Studies, Clinical Engineering and Technical Management through skilled professionals, whose goal is to offer a consultation and analysis service, always being attentive to the needs of the end client whilst respecting the National and European norms.

The company also provides sales, consultancy and maintenance services for all mobile and fixed biomedical equipment.

The H@H hospital at home eHealth system project has been included within the projects to be financed under the “Aid for Investment in Research for PMI” (“Aiuti agli Investimenti in Ricerca per le PMI”) and is recognised among the projects eligible for funding.

H@H Systems include the H@H hospital at home eHealth system and H@H smartmews computer aided clinical decision system.

The research and development team is made up of a team of specialist research and developers capable of combining creativity with science and technology. The team exploits the synergies of some of the most important national universities, research centres and centres of excellence in the territory: CNR, Enea, Politecnico di Bari, Salento University, Centri e Concorsi di Ricerca (Centres and Research Consortiums), network of research and development companies. In particular, the main activity of our current research is focused on Assisted Living.
For many years Item Oxygen has been supporting private and public health facilities with the design, risk analysis, construction and management of medical gas plants and for vacuum and scavenging of anaesthetic gas.

All centralised systems and devices manufactured and marketed by Item Oxygen are CE Certified as Medical Devices, as required by the Legislative Degree 46/97 as amended by the European Directive 93/42/EC.

Item Oxygen is UNI EN ISO 13485 (previously 46001) certified and complies with the related quality system and has approval to apply the CE symbol to the design, construction and marketing of the following medical devices:
- medical gas plants
- intracavitary vacuum plants
- anaesthetic gas scavenging plants

Item Oxygen is ISO 9001:2002 certified for the marketing of the following medical devices:
- intracavitary vacuum plants
- medical air production plants
- components for distribution plants (reducers, sockets, shut-off valves)
- alarm systems
- anaesthetic gas scavenging systems
- bed head units and operating room wall units
- accessories for the use of medical gases (flowmeters, humidifiers, vacuum regulators, etc.)

Item Oxygen offers its expertise and vast experience for the design, construction and commissioning of technical and pure gas distribution plants. The high level of professionalism and the product profiles devoted entirely to laboratory use guarantee quality and safety, the essential parameters for anyone qualified to work in the scientific research field.

Item Oxygen has a wide range of components for gas plants in order to meet the varied requirements for the construction of complete distribution lines, from the storage area to the usage points.

Item Oxygen, thanks to our experience in the medical and hospital sectors, has designed and produced an electromedical bed head series. Constructed in accordance with the Medical Devices Directive 93/42/EEC, they provide different functions: direct and indirect lighting, electrical distribution, signalling components, alarms, diagnostics and communications, visual monitoring and medical gas distribution.

Proper lighting, the size of individual parts for the services to be delivered, the correct combination of the various profiles, easy installation and maintenance make the Item Oxygen bed head series an ideal choice.
Item Oxygen is involved in a project for a new hospital - Ospedale Della Murgia. The purpose of this new hospital is to merge hospitals from two towns and become the main hospital for the region.

The medical gas plant designed and installed by Item Oxygen is for 1000 beds.

Particular plants were designed and installed for the following critical wards:

- Stroke Unit
- Intensive Care Unit
- Sub Intensive Care Unit
- Infectious Diseases Ward

The plants for the PET/X-ray and imaging diagnostics wards were also designed and installed in accordance with the required particular installation and specific compatible materials.
The innovative operating rooms and wards have been designed to the highest standards using integrated units and versatile and reliable bed head units.

The wards include:
- Endoscopy
- Delivery
- Hemodynamics
- General Surgery
- Endoscopy
- Orthopaedic

The bed head units are built in compliance with the applicable norms, are CE certified as class IIb medical devices (Legislative Decree 46/97) and guaranteed for 12 months.

For this particular project the Anaesthetic Gas Scavenging plant was a centralised system that involved strategically placed blowers in the various technical areas - the plant complies with the industry standard UNI EN ISO 7396-2.

The water treatment plant of the Dialysis Ward is amongst the most efficient and innovative plants at a national and European level.

The treated waters distribution plant is made of AISI316 stainless steel and is capable of delivering an effective range of not less than 1500 litres/hour at a temperature of 15°C and guarantees the simultaneous supply of all 26 dialysis units for 2 daily dialysis rounds.

This system is able to deliver every bed with treated water (reverse osmosis treatment) that physically and bacteriologically meets the requirements of the European Pharmacopeia (Art.10 Tab.1 and Tab.2) as well as the guidelines laid out by the Italian Society of Nephrology and Dialysis (S.I.N.) with regards to the preparation of liquids for dialysis. It is also suitable for supplying dialysis monitoring for both dialysis treatment and online hemofiltration treatment.

The characteristics of the treated waters purity have been proved during the plants validation process, through chemical and bacteriological analysis in accordance with the S.I.N. guidelines.
The System

The H@H hospital at home eHealth system provides the medical professional with: automatic patient classification, video calling, continuous real time monitoring, trend – up to 96 hours, clinical chart, remote activation for the mucous vacuum, remote activation for oxygen therapy and an alarm and notification system when the readings are outside the set thresholds.

The Device

• ECG (5 or 12 lead)
• NIBP
• SpO2
• Temperature (2 channels)
• Heart Rate (HR)
• Respiratory Rate (RR)
• Mucous vacuum
• Oxygen therapy – integrated O2 concentrator
• 17” Touch screen
• Integrated camera, microphone and speakers for video calling
• Physiological parameter monitoring

The Advantages

• Reduced rate of hospitalisations
• Significantly reduced hospitalisation costs
• Reduced pharmaceutical costs
• Oxygen always available for oxygen therapy thanks to the incorporated concentrator
• Reduced risk of infection from multi-resistant germs present in hospitals
• Better quality of life for the patient
• Reduced rate of hospital re-admittance
The System

The H@H smartmews clinical decision support system represents the evolution of medical technology in terms of remote monitoring of vital parameters, providing medical professionals with an immediate and complete clinical condition of the patient. The H@H smartmews implements simultaneous and automatic clinical scores: MEWS (Modified Early Warning Scores), SEPSIS Screening Tool, PESI (Pulmonary Embolism Severity Index) and Shock Index.

The Device

- ECG (5 or 12 lead)
- NIBP – Adult and Pediatric
- SpO2
- Temperature (two channels)
- Respiratory Rate (RR)
- Possibility to view 6 complete parameters in real time
- Extended arrhythmia analysis with classification, Multiview II
- ST segment analysis
- Expandable monitoring modules
- 19” Touch screen
- WEB BASED system for monitoring vital parameters and clinical scores
- Automatic MEWS calculation
- Automatic Shock Index calculation
- Automatic PESI (Pulmonary Embolism Severity Index) calculation
- Guided protocol for the early recognition of SIRS, SEPSI, SEVERE SEPSI and SEPTIC SHOCK
- Trend for vital parameters and measured scores
- Automatic notifications and alerts sent to ward management and staff

The Advantages

- Improved outcomes (mortality, morbidity, etc.)
- Reduced number of unplanned ICU admissions
- Recovery and monitoring of patients in wards with less care than ICU
- Reduced times and costs associated with hospitalisations
- Installation of sub-intensive therapy spread throughout the hospital
- Economic benefits (insurance premiums)
- Increased safety and prevention of adverse events and an improvement in the quality of care
- Reduced clinical risks