Inspira Technologies was established in 2017 to develop the OXSPIRA system, being a brand-new approach to acute respiratory care.

Driven by the need for an innovative solution to the well known and common risks to Mechanical Ventilation (MV) - 100% require induced coma stasis, 50% mortality rate, 25% long-term lung damage, 40% readmission rate etc. - the OXSPIRA system design provides a far safer, efficient and economically viable solution than MV.

The OXSPIRA system, is an intravascular oxygenation system that increases oxygen levels and removes carbon dioxide from the venous blood, providing support to patients suffering from acute respiratory failure. Patients are left awake and alert, allowing for their lungs to rehabilitate without intrusive intubation and MV.

OXSPIRA is administered with a standard central line insertion procedure (IV) into the vena cava, and therefore can be administered by most medical practitioners in a diverse range of settings including hospitals and non-clinical settings.

These essential parameters will result in healthcare systems no longer being overburdened and ensure patients receive appropriate and effective medical care. People will be able to resume their daily lives and economies will return to normal activity.

The OXSPIRA is a viable alternative to MV in the shadow of Coronavirus.
In the Shadow of Coronavirus

Coronavirus may cause alveolar damage, leaving MV ineffective*
The only way to save patient’s lives is through intravenous oxygenation

Respiratory Failure - US

Potential Coronavirus Deaths
Up to 2.2m people**

Need for Mechanical Ventilators (MV) Machines*
740,000 units**
(500 per 100k population)

Forecasts Infections in the US
18+ months
of healthcare challenges ahead

System
Purchase Price
$6,500

Disposable Catheter
Purchase Price
$850

Unlimited delivery potential

Diverse Place of Treatment
ICU’S, HCU’s, all hospital wards,
non-clinical settings & homes

**The Washington Post 19 Mar 2020 - Epidemiologist, Neil Ferguson & others at Imperial College Covid-19 Response Team

Proprietary & Confidential - Inspira Technologies Ltd [Insense Medical Ltd]
Pandemic Need for Respiratory Failure Treatment

A STATE OF EMERGENCY due to a PANDEMIC VIRUS (COVID-19) is increasing the current needs for MV by 1000%

MV limitations are compounded by a lack of medical staff and direct associated complications

- **Pandemic Viruses**
  - Coronavirus

- **Pulmonary Edema**

- **COPD exacerbation**
  - Chronic Obstructive Pulmonary Disease

- **Massive Pulmonary Embolism**

- **Pneumonia**

- **ARDS**
  - Acute Respiratory Distress Syndrome
Problem with intubation and MV

50%  Mortality rate
40%  Readmission (long-term physical health impairments)
25%  Ventilator Associated Lung Injury (VALI)
25%  Ventilator Associated Pneumonia (VAP)
50%  Of hospital days - weaning off MV
80%  Respiratory muscle wasting & pressure wounds
100%  Medically induced coma
Disposable Catheter
A standard central line insertion procedure (IV) into the vena cava

Oxygen Diffusion
OXSPIRA diffuses oxygen directly into the depleted venous blood

Display
A display & control panel with medical device integration
The OXSPIRA system is comprised of four major components: A touch-screen display control panel, a minimally invasive catheter, an exchange fluid circulating means and a carrier container.

Using a standard central line insertion procedure (IV), the apparatus is positioned into the inferior vena cava (IVC). A supersaturated carrier continuously circulates within the catheter’s membrane tubes, using gas exchange to deliver O2 and extract CO2 from the patient’s venous blood.

International PCT patent application filed in Jan 2019
Additional patents for technology and software underway.
Preclinical Studies in 4 Swine Models

Study performed on 4 swine models ranging up to 120kg at Lahav CRO, an OECD GLP medical facility

Catheter insertion

The OXSPIRA catheter was inserted using a central line insertion procedure (IV) via the right femoral vein into the inferior vena cava.

The catheter was connected to an oxygen source supplied managed through pressure and flow controllers

Experiment data

Blood was sampled from 4 locations – Femoral artery (A) and vein (V), pulmonary artery (PA) and inferior vena cava (IVC). The blood pressure was continuously measured and monitored at these points. Also, the heart rate, saturation and end-tidal CO$_2$ (ETCO2) levels were measured and monitored throughout the entire experiment. Blood from PA represents deoxygenated blood before entering the lungs. In addition, oxygen flow rate was measured using a flow meter
Preclinical Study Results

The studies illustrated substantial levels of oxygenation, 35ml/min of oxygen using the OXSPIRA disposable catheter in extreme hemodynamic pre-settings.

### Table

<table>
<thead>
<tr>
<th>Time</th>
<th>2 min</th>
<th>11min</th>
<th>16min</th>
<th>24min</th>
<th>2:10hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measuring Point</td>
<td>V</td>
<td>IVC</td>
<td>PA</td>
<td>A</td>
<td>V</td>
</tr>
<tr>
<td>PO2 (mmHg)</td>
<td>31</td>
<td>38</td>
<td>41</td>
<td>415</td>
<td>28</td>
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<tr>
<td>SO2%</td>
<td>55</td>
<td>70</td>
<td>76</td>
<td>100</td>
<td>47</td>
</tr>
</tbody>
</table>

**Conclusion:**

During several studies, the catheter remained in the swine model vein’s for up to several ours, during which vital parameters remained stable & within range.

The above table illustrates that the PO2 in the vein (measurement before the catheter) showed consistent lower levels of oxygen then in the inferior vena cava (measurement after the catheter). The OXSPIRA catheter increased the PO2 levels by up to 13 mmHg, with saturation rates increasing significantly.
Accessibility
- Suitable for diverse non-clinical environments including homes
- No weaning - Increasing patient turnover & reduced hospital days
- Safer treatment of chronically ill and elderly patients
- Affordable portable unit for every bed in hospitals and clinics

Effective
- Direct intravascular oxygenation allowing lungs to rehabilitate
- Low risk & reduced costs in relation to MV
- Mortality Rate - significantly lowered in comparison to MV
- Readmission Rate - significantly lowered in comparison to MV

Competitive Advantages
- Low direct cost of treatment $650 per disposable catheter
- Easily deployed & administered in diverse locations
- Unlimited national mass-stockpiling $3.5K OXSPIRA vs $30k MV machine
- Patients left awake and alert (no medically induced coma)
OXSPIRA VS MV
A Superior Value Proposition

<table>
<thead>
<tr>
<th>Application</th>
<th>ICU’S, HCU’s, all hospital wards and non-clinical settings &amp; potential at home</th>
<th>Intensive Care Units - ICU’S Hospital Care Units - HCU’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient Consciousness</td>
<td>Awake &amp; Alert</td>
<td>Medically Induced Coma</td>
</tr>
<tr>
<td>Sedative Use</td>
<td>None</td>
<td>All patients</td>
</tr>
<tr>
<td>Complication Level</td>
<td>Low</td>
<td>High</td>
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<tr>
<td>Weaning</td>
<td>None</td>
<td>50% of hospital days</td>
</tr>
<tr>
<td>Ventilation Days</td>
<td>3-5 days</td>
<td>7+ days</td>
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<tr>
<td>VALI</td>
<td>None</td>
<td>25% of MV patients</td>
</tr>
<tr>
<td>VAP</td>
<td>None</td>
<td>9-27% of MV patients</td>
</tr>
<tr>
<td>Muscle Wasting &amp; Pressure Wounds</td>
<td>None</td>
<td>Up to 80%</td>
</tr>
<tr>
<td>Readmission rate from complications</td>
<td>None anticipated</td>
<td>40%</td>
</tr>
<tr>
<td>Higher mortality rate from complications</td>
<td>None anticipated</td>
<td>Up to 50%</td>
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</tbody>
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