Respiratory

More than 35% of people with sleep apnea suffer from high blood pressure
More than 80% of people who continue to suffer from high blood pressure 
(despite taking three or more drugs) also have sleep apnea
A person with sleep apnea is 7 times more likely to have a car accident

Diagnostics

75 million units of blood are collected annually WW, with 12 basic tests 
performed on every unit of donated blood.

Infusion

1.7 million (5% of admissions) infections occur each year in U.S. hospitals
99,000 deaths per year are caused by hospital related infections
Agenda

• Trends in Medical
• Where We Win
• Focus Applications
• Sales Tools & Support
Trends in Medical

Trend

- Aging population
  - 2000-2050 > 60 yrs, 600M – 2B people
- Rising costs
  - Over 50 yrs, +2% over GDP
  - US $2.5-$4.5 Trillion, 2009-2019
- Shortage of medical professionals
  - By 2025, estimated shortage of 260,000 registered nurses and 124,000 physicians
- Lower cost diagnosis, increased patient monitoring, continued emphasis on safety, less invasive treatments

Implication

- Growing device industry
- Home healthcare
- Portable / wearable products
- Low power, small size
- Sensors to minimize patient risk
- OEMs need higher value props & differentiation
What Do Customers Want?

- Preference for fewer suppliers
- Leverage full HON product portfolio

- Quality
- Change notifications
- Stable, long-term supplier

- Get involved at an early stage
- Help designers solve their problem
- Leverage HON expertise

- Provide samples early in design cycle
- Build comfort level with HON products & performance
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Where to Focus

Medical

Respiratory
- Sleep Apnea
- Ventilators
- Anesthesia Delivery
- Oxygen Conserver
- Spirometer
- Oxygen Concentrator
- Nebulizer

Fluid Delivery & Management
- Dialysis
- Infusion Pumps
- Cardiac Pumps
- Contrast Delivery

Diagnostic / Analytical Equipment
- Chemistry Analyzer
- Chromatography
- Cellular Analysis / Cytometry
- Blood Banking
- Molecular Diagnostics / PCR
- Coagulation Testing
- Centrifuge

Surgical Equipment / Support Products
- Endoscopes
- Drills / lasers / cutting tools
- Air / Insufflation / Suction
- Ophthalmic surgical tools
- Heart-lung machine
- Water flow
- Robotic surgery
- Blood warming / cooling

Hospital / Clinic Hardware
- Sterilizers
- Fluid / Air Warmers
- Incubators
- Medicine Storage
- Beds / Chairs
- Gas / Fluid Infra-structure

Patient Monitoring / Acute Testing
- Breathalyzer
- Blood Pressure
- Tonometer / Eye tests
- Other

Rehab / Fitness
- Wound healing
- Exercise Equipment
- Other home rehab

Focus
- Where to Focus

Opportunistic

Opportunistic
Where We Win

Moving Gases

Moving Fluids
Focus Products for Medical

Board Mounted Pressure

Heavy Duty Pressure

Force

Humidity

Airflow

Position

Thermal

Electromechanical
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Anesthesia / Ventilators: Why Attractive?

- $1.2B spent worldwide on ventilators, 5% growth
- Hospital and transport ventilators
- Sensor-rich and critical to system performance
- Honeywell’s products and expertise lead to high win rates
- Example companies:
  - CareFusion, Covidien, Dragerwerk, GE Healthcare, Hamilton Medical, Maquet, Newport Medical, Philips / Respiration, and Resmed
Ventilators

Strong Product Fit in Pressure & Airflow

Heavy Duty Pressure

Airflow

Low Pressure TruStability® and Flex Heater

Low Pressure TruStability®
Ventilator Win

Application:
• Measure patient breathing transition from inhaling to exhaling; accuracy < 1 in H₂O

Situation:
• Customer evaluated Freescale and All Sensors
• Customer leverages building block modules on other product models

Why We Won?
• Sales team demonstrated a thorough understanding of customer’s need
• TruStability® ULP tested by the customer to have the highest performance
Infusion Pumps: Why Attractive?

- Steady growth expected
- Worldwide infusion market of $6 billion
- More than 100 companies in this space
- Sensors are critical to system performance
- Honeywell’s products and expertise leads to high win rates
- Example companies:
  - Animas Corporation, Baxter Healthcare Corporation, B. Braun, CareFusion, Hospira, Insulet Corporation, Moog, Roche Holdings, Sigma, Smiths Medical and, Stryker Instruments
Types of Infusion Pumps

• **High-Volume Pumps**
  – Peristaltic pumping mechanism
  – Occlusion detection
  – Flow measurement
  – Bubble detection
  – Reservoir empty

• **Syringe Pumps**
  – Occlusion detection
  – Syringe size

• **Insulin Pumps**
  – Multiple pumping designs
  – Opportunistic area today

High-Volume Infusion Pumps

• Force sensors
  – May use more than one sensor per device
  – Allows non-invasive measurement
  – Measures fluid flow by differential pressure
  – Measure occlusion through tubing expansion from pressure build-up in tubing

• Other sensors
  – Optical or Hall/MR; door closed indicator and tube alignment

1865 Series  FSS Series, FSS-SMT Series  FSG Series

Lead with Force Sensors

Infusion Pump Win

Application:
• Automatic syringe size detection; reduces need for user to input syringe size, reducing errors
• Syringe size needed for accurate delivery

Situation:
• Customer experienced delivery issues with incumbent supplier
• Honeywell has existing force business with the customer

Why We Won?
• Leveraged product performance, competitor stumble, and existing relationship

Unique Solutions From Customer Intimacy
Diagnostics: Why Attractive?

- Steady, above-market growth, >6%
- Significant start-up activity and venture capital money
- Office-based and point-of-care testing
- Sensor-rich and critical to system performance
- Honeywell’s products and expertise lead to high win rates
- Example companies:

Diagnostics / Analytical Equipment

**Chemistry Analyzer**
- Immunoassay
- Potentiometric
- Calorimetric

**Gene Sequencer**
- PCR analyzer
- DNA sequencer

**Blood Screening**

**Hematology Analyzer**
- Flow Cytometry
- Cell Counting

**Chromatography**

**Blood Gas Analyzer**

Diagnostics: Chemistry Analyzer

Chemistry Analyzer

Methods:
• Immunoassay
• Potentiometric
• Calorimetric
• Enzyme-linked immunosorbent assay (ELISA)

Uses
• Determine chemical levels in blood, urine or serum
• Test glucose, cholesterol, hormones, drugs, HIV tests

Sensors
• Pressure – sample handling
• Optical – position sensing
• Thermal – maintain fixed temp
• EM switches – doors and sample position
Diagnostics: Hematology Analyzer

Hematology Analyzer

- Flow Cytometry
- Cell Counting

Uses

- Used to count blood cells, CBC tests
- Determine if cells have abnormalities
- Pumps are used to deliver sample fluid and sheath fluid
- Flow needs to be precise
- Board-mount pressure sensors are often used
- TruStability® Wet Media-compatible is a leading product

Sensors

- Pressure – sheath and sample fluid flow
- Optical – sample handling position
- EM Switches – panel / door closed, sample position

Uses

- Pumps are used to deliver sample fluid and sheath fluid
- Flow needs to be precise
- Board-mount pressure sensors are often used
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Sensors

- Pressure – sheath and sample fluid flow
- Optical – sample handling position
- EM Switches – panel / door closed, sample position
Diagnostics / Analytical Equipment

Blood Gas Analyzer

- Determine oxygen, CO2, or pH levels
- Evaluate respiratory or kidney function

Sensors
- Pressure sensors – sample movement
- Thermal – keep sample between 31 C and 33 C
- Optical – detect presence of sample

Uses

Blood Screening

Methods:
- Immunoassay
- ChLIA – Chemiluminescent immunoassay

Uses
- Tests donor blood for type and abnormalities / diseases
- Uses multiple assays to screen for various viruses

Sensors
- Pressure – sample movement
- Optical – position sensing
- Thermal – maintain temp
- EM Switches – doors and sample position

Common Theme: Pressure, Thermal, Optical
Diagnostics / Analytical Equipment

Chromatography
- Gas
- Liquid

Uses
- Separation method that resolves the individual compounds that comprise a complex mixture

Sensors
- Pressure or airflow
- Thermal heater
- Optical or Hall for carousel position
- EM Switches or Hall for door position

Molecular Diagnostics
- Gene sequencer
- PCR

Uses
- DNA sequencing used to understand human chromosomes
- PCR is a method for making copies of DNA

Sensors
- Pressure – sample handling
- Optical – sample carrier position
- Thermal – PCR temperature measurement

Common Theme: Pressure, Thermal, Optical
Diagnostic Equipment Win

Application:
- Detect vial handling mechanism

Situation:
- Customer experienced false readings (from background scatter) from incumbent, competitor sensor
- Competitor sensor performance degraded over time

Why We Won?
- Sales team worked closely with the customer’s design team
- Honeywell’s products were rigorously tested by the customer and reliably met the specification

HOA 1406
Hospital Hardware

Wide Range of Applications

- TruStability® HSC Series, SSC Series
- EM Switch
- Thermistor / Temp
- Honeywell HumidIcon™ Digital Humidity/Temperature Sensors HIH 6130/6131 Series
- SS400 Series, Hall

- Sterilizer
- Bed
- Incubator
- Medicine cabinet/dispenser
Agenda

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Leverage the Sales Tools

1. Medical Applications Flyer – New
2. Medical Applications Brochure – Updated
3. Thermal Management Solutions for Medical Applications – New
4. Medical Slide Deck – New
5. Application Notes – Updated
6. Success Stories (internal use) – New

Many Tools Available For Medical
Key Takeaways

1) **Healthcare is growing**
   – VC investment into the medical device segment continues to remain strong

2) **Leverage differentiated products for the target applications**

3) **Focus on applications involving movement of fluid or gases**

4) **Sell the entire portfolio – more $$$!**

5) **Solicit support from the medical and product teams to remove barriers on strategic and key accounts**

*Let’s Continue the Momentum in 2012*
Call to Action

• **Next 30-60 days**
  – Identify the target customers in your territory that align with our Medical segment focus

• **Next 60-90 days**
  – Visit target accounts
  – Qualify opportunities
  – Enter NBOs in salesforce.com
  – Run Dealmaker
  – WIN!
  – We’re here to support

*Identify the Key Customers and Keep Selling*