October 15, 2020; SIA

MEDICAL TECHNOLOGY

- THE USE OF MICROELECTRONICS, SEMICONDUCTORS IN FULFILLING OUR MISSION

TREVOR GUNN
VICE PRESIDENT, INTERNATIONAL RELATIONS
WASHINGTON, DC

AdvaMed
Advanced Medical Technology Associati

Medtronic
Further, Together

WE ARE THE MEDICAL TECHNOLOGY INDUSTRY

BUT WHAT IS MEDICAL TECHNOLOGY?

MEDICAL TECHNOLOGY LANDSCAPE –SIMPLIFIED

	Capital Equipment	Implantable/Disposable
Therapeutic	Elekta, VARIAN medical systems 	Boston Scientific, Abbott 
Diagnostic	GE, PHILIPS, SIEMENS 	BD 

Medtronic

WE ARE FOCUSED ON MANY PUBLIC HEALTHCARE GOALS
BOTH IN OUR MISSION AND TRANSLATED INTO OUR WORK

PATIENT-FOCUSED

COVID-19/ respiratory disease

Reduction of disability

Addressing ageing populations

Better patient outcomes

Rapid return to work and family

VALUE AND ACCESS IN HEALTH

Value-Based Healthcare

Affordable healthcare access

Frugal innovation

HEALTHCARE INFRASTRUCTURE

Building physical healthcare capacity (eg hospitals)

Education, training, and retention of frontline healthcare workers

AdvaMed Medtronic

CRITICAL DIFFERENCES: MEDTECH VS PHARMA

CHARACTERISTIC	MEDTECH	PHARMA
Industrial Differences		
Scientific Basis	Engineering: Mech, Elec, IT & Systems	Pharmacology, Chemistry
Product Scope/Diversity	Much greater number/diversity of products	Limited number of products and therapeutic areas
R&D: Clinical Research	• Variable by therapy, Few Randomized Clin Trials(RCT) • Best data= post-market	All Placebo-Controlled, Double-Blinded, Randomized Clin Trials
Technology Differences		
Life-Cycle	Rapid obsolescence and Short Life Cycle	Long Life Cycle- Justifies length of regulatory process
Product Testing	Through evaluation during design-phase	Long-lasting (time-consuming) tests for efficacy and safety

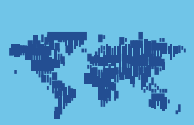
CRITICAL SIMILARITIES: MEDTECH AND IT

CHARACTERISTIC	MEDTECH	IT
Industrial Similarities		
Scientific Basis	Engineering: Mech, Elec, Software, IT & Systems	Engineering: Mech, Elec, Software
IP	Accumulated Operating Knowledge	Accumulated Operating Knowledge
Tech Life-Cycle	Rapid, Iterative (18 months), software based	Rapid, Iterative, software based
Technology Similarities		
Greater IT Connectivity	Improved Product Performance: Greater prevention, improved patient outcomes	Improved Product Performance: Greater functionality, higher customer satisfaction
Life Cycle	Rapid obsolescence and short life cycle	Rapid obsolescence and short life cycle

PROOF POINT: We led our industry's response to and benefitted from WTO's Information Technology Agreement (ITA2). This was accompanied by large **patient benefits**

MEDTRONIC IS THE **WORLD'S LARGEST MEDICAL TECHNOLOGY AND SOLUTIONS COMPANY**

Our portfolio includes more than 213,000 global products which diagnose, prevent, mitigate, treat or cure disease or other conditions.



150+
COUNTRIES

76
MANUFACTURING SITES

95,000+
EMPLOYEES

10,000+
ENGINEERS & SCIENTISTS

131,000
TECH'S (SKU'S) IN PRODUCTION

21
LAB & RESEARCH DEVELOPMENT SITES

47,000+
TOTAL PATENTS IN OUR PORTFOLIO

$2.3B
R&D INVESTMENTS LAST YEAR

UC202002928EN

Medtronic Business Strategy

THERAPY INNOVATION: Introducing and delivering meaningful offerings at the therapeutic, procedural, and system level

GLOBALIZATION: Addressing the inequities in healthcare access globally

ECONOMIC VALUE: Helping lead the creation of value-based healthcare solutions

Positive Impact on Non-Communicable Diseases

MORE THAN **70** **conditions** in the human body treated with our therapies

MORE THAN **2** **people every second** have their lives improved

More than Products: Integrated Health Solutions

Delivering tailored solutions to improve clinical, operational, and financial outcomes through long-term partnerships with hospitals, health systems, physicians, and payers

Transforming Healthcare: Value-based Healthcare (VBHC)

- Improving clinical and economic outcomes to expand access and optimize cost and efficiencies
- Under VBHC business models, shared accountability for costs and outcomes are linked to the product, services, or integrated solutions

Public Private Partnerships

These partnerships align with our corporate mission by increasing patient access. They drive our globalization strategy and actively contribute to the global push for universal health coverage. They create mutual benefits by leveraging skills and assets through the appropriate transfer of risk. Through jointly defined objectives they enhance economic value by delivering improved outcomes and increased access to therapy innovation.

Learn more at www.medtronic.com

Medtronic

OUR THERAPIES AND SOLUTIONS IMPROVE LIVES

CARDIAC & VASCULAR

- Aortic, Peripheral, & Venous
- Atrial Fibrillation Solutions
- Cardiac Rhythm and Heart Failure
- Coronary and Structural Heart

DIABETES

- Advanced Insulin Management
  - Automated Delivery Systems
  - Multiple Daily Injection Solutions
  - Customer Retention & Experience
- Non-intensive Diabetes Therapies

MINIMALLY INVASIVE THERAPIES

- Care Solutions
- Respiratory, Gastrointestinal & Informatics
- Surgical Innovations

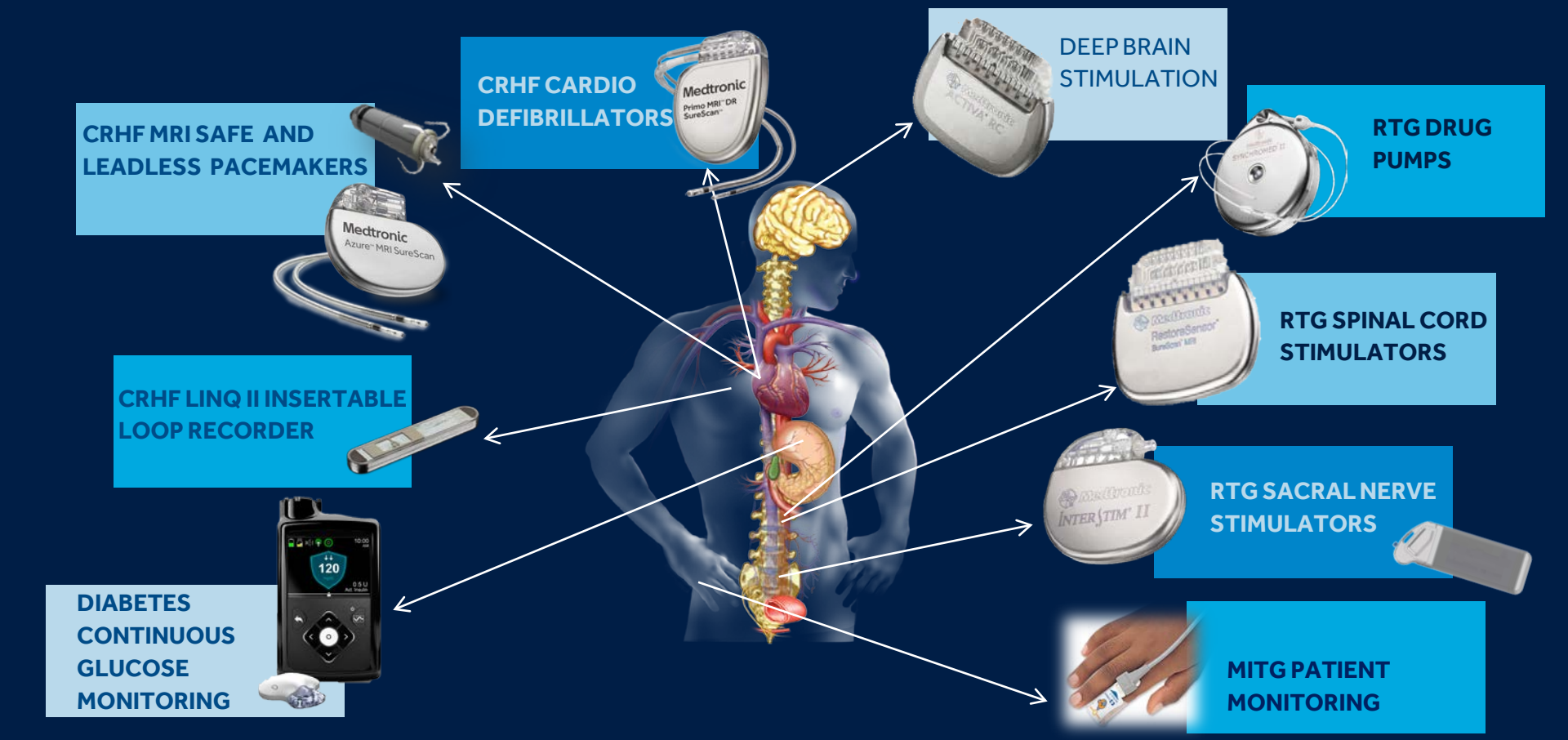
RESTORATIVE THERAPIES

- Therapies
- Pain Therapies
- Specialty Therapies
- Spine

MICROELECTRONICS -RELIABILITY

Established in 1973 by seven former Motorola engineers as Micro-Rel, the Medtronic Tempe Campus began assembling electronics for Medtronic's implantable pacemakers. Today, the Tempe Campus has become the primary point for electronic solutions for implantable medical applications.

TEMPE MICROELECTRONIC SOLUTIONS SPAN THE BODY



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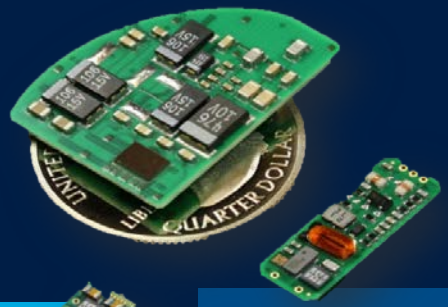
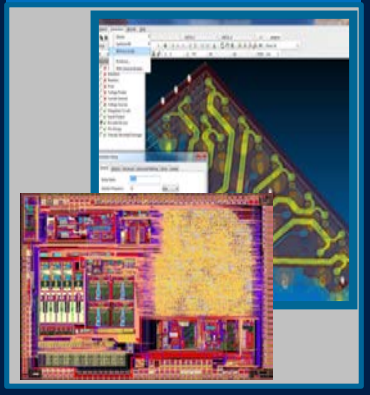
A SHARED MICROELECTRONICS TECHNOLOGY CENTER

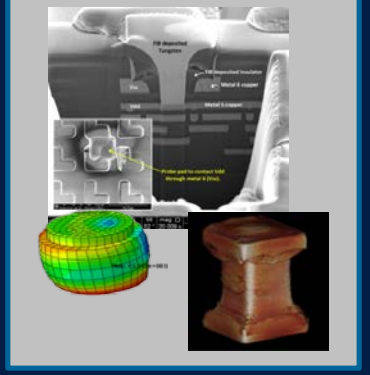
'No Rework' Microelectronics Assembly & Test



Ultra Low Power Electronics



Physics of Failure & Reliability Labs



Implantable Sensors and Microsystems

Wearable Sensors and Interfaces

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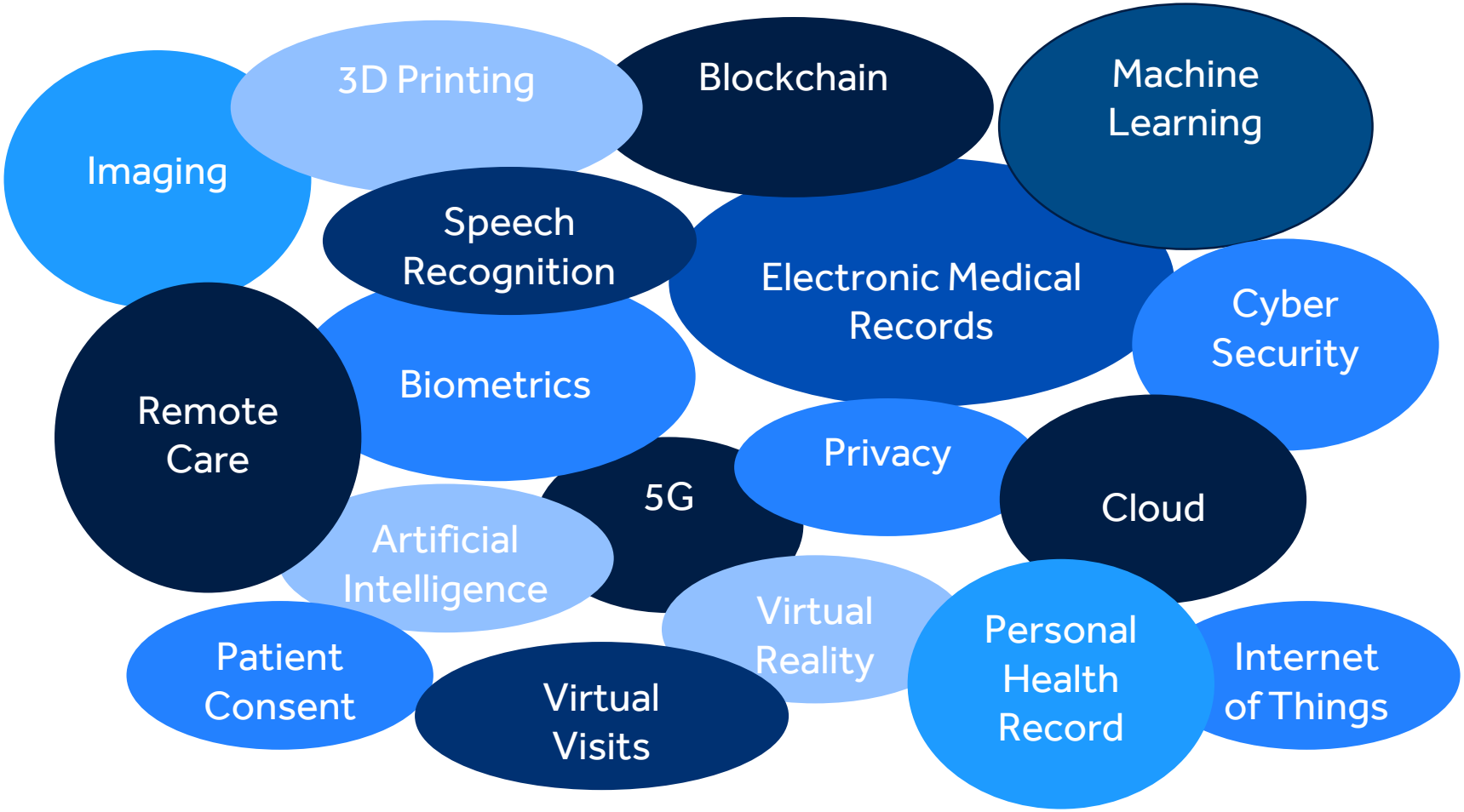
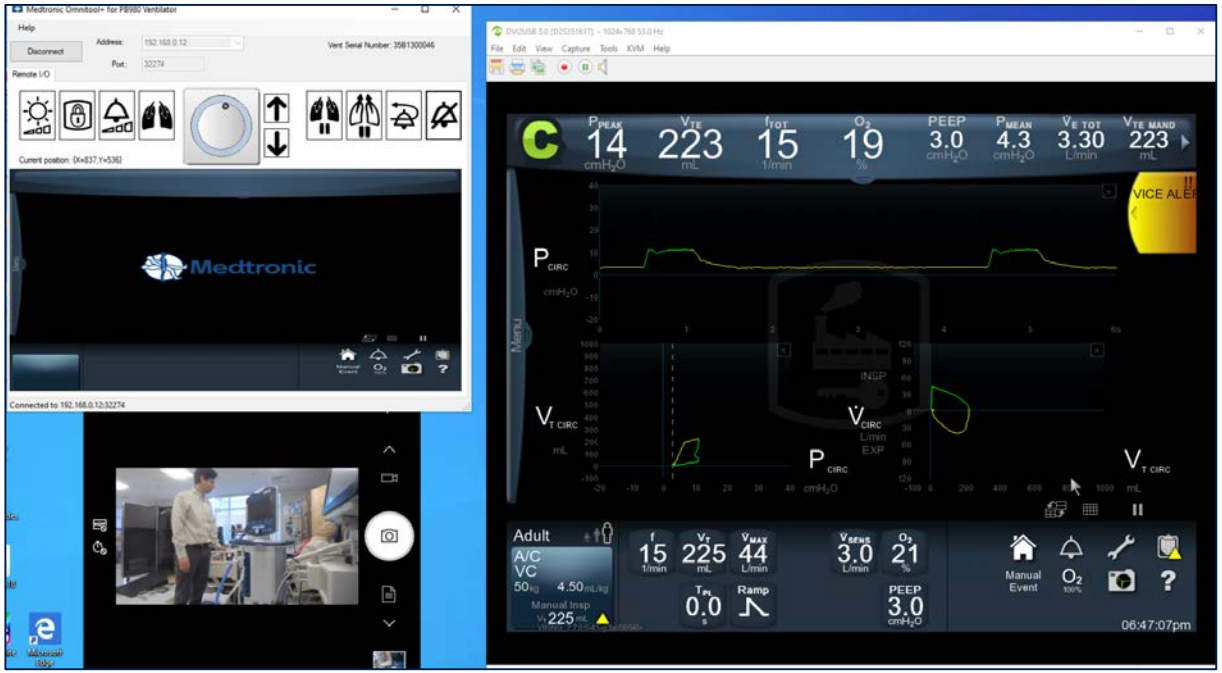
MEDICAL TECHNOLOGY CRITICAL TO THE FUTURE OF HEALTHCARE



- Medical Technology is affecting all areas of healthcare
- These technologies build upon each other

COVID-19 – EXAMPLE – CONNECTED VENTILATOR
INNOVATION AT SPEED

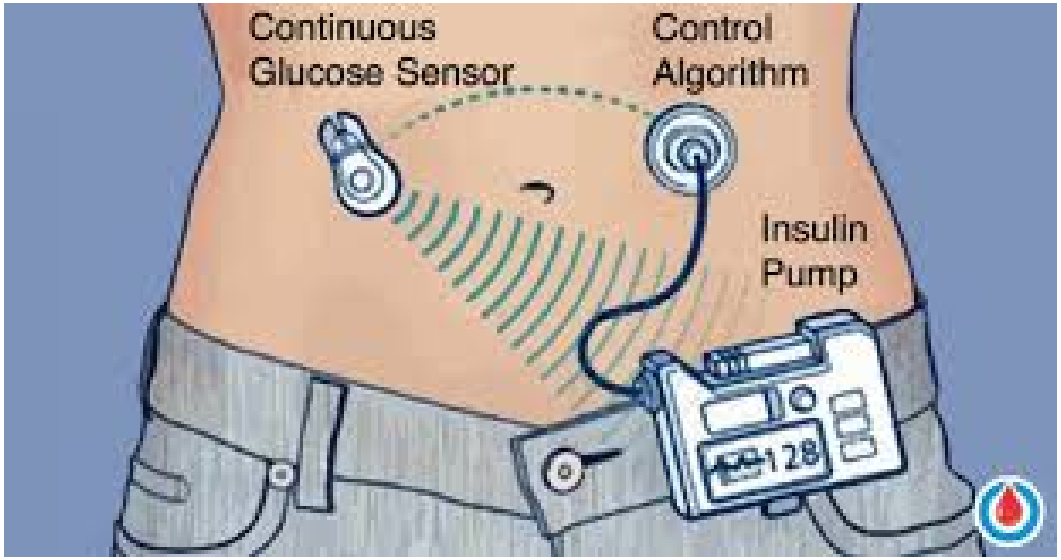
- **Background** – Accessing Ventilators created burden on staff and PPE
- **Solution** – Create capability to remotely view and control multiple Ventilators, using Medtronic-engineered connected devices and software solutions



- **Result** – Technical solution developed to allow remote control

DIABETES - EXAMPLE

- **Background** – Type 1 Diabetes impacts huge numbers of people globally and lack of management can have dramatic consequences
- **Solutions** – Diabetic patients have many – including Connected Devices, AI, Remote Care



- **Result** – Improved clinical outcomes and lower costs
- **Doctors/nurses** have "real-time access" to patient data uploaded to the cloud, expediting remote diagnosis and response times

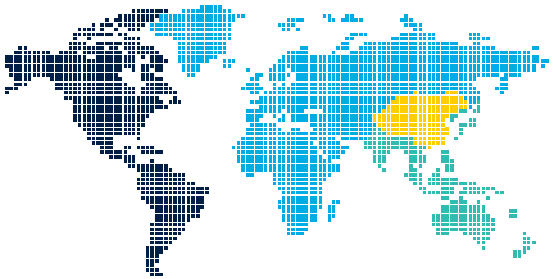
VIRTUAL TRAINING & EDUCATION

- COVID-19 has driven rapid change from in-person
- Training for clinicians and patients
- Opens up huge opportunities for emerging mkt doctors
- Increased leverage of technology
- Travel not required
- Interactive capabilities
- Access to global experts
- Reduced burden on healthcare
- Achieve similar outcomes
- Creates foundation for future

Medtronic Education & Innovation Ctr- Istanbul

MEDTRONIC AND COVID-19: INFINITE DEMAND, LIMITED SUPPLY

CRITICAL MEDTRONIC ACTIONS RELATED TO PUBLIC HEALTH



01 INCREASING SUPPLY

02 FIGHTING AGAINST TRADE RESTRICTIONS

03 EXPANDING HUMAN CAPACITY

04 ENGAGING GLOBALLY WITH INTL ORG'S

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