The Adoption and Penetration of High-Tech Equipment in Latin America
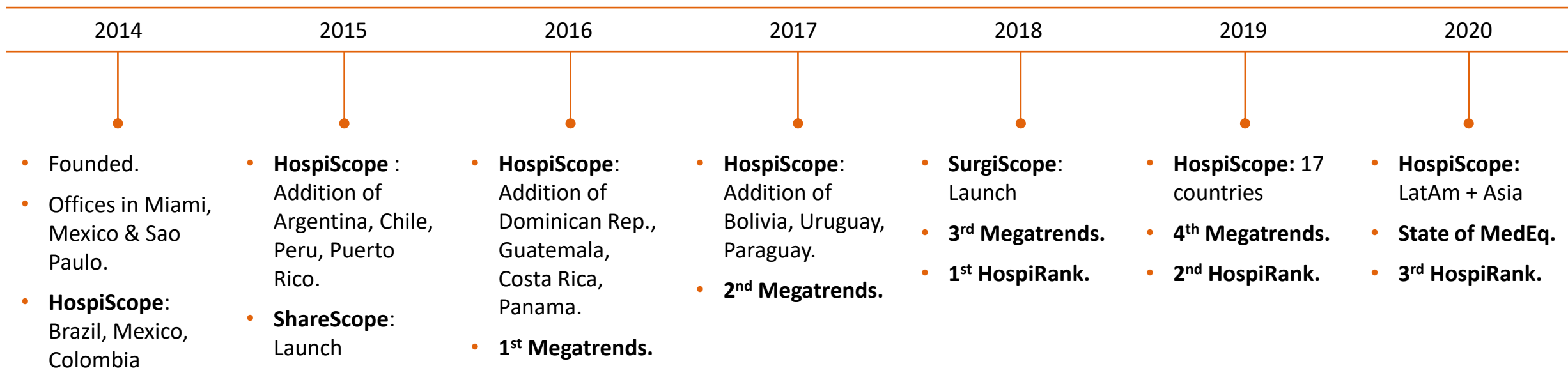
global health intelligence

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Actionable insights
Built on 20+ years experience in Market Intelligence.

2014	2015	2016	2017	2018	2019	2020

- **2014**
  - Founded.
  - Offices in Miami, Mexico & Sao Paulo.
  - **HospiScope**: Brazil, Mexico, Colombia

- **2015**
  - **HospiScope** : Addition of Argentina, Chile, Peru, Puerto Rico.
  - **ShareScope**: Launch

- **2016**
  - **HospiScope**: Addition of Dominican Rep., Guatemala, Costa Rica, Panama.
  - **1st Megatrends.**

- **2017**
  - **HospiScope**: Addition of Bolivia, Uruguay, Paraguay.
  - **2nd Megatrends.**

- **2018**
  - **SurgiScope**: Launch
  - **3rd Megatrends.**
  - **1st HospiRank.**

- **2019**
  - **HospiScope**: 17 countries
  - **4th Megatrends.**
  - **2nd HospiRank.**

- **2020**
  - **HospiScope**: LatAm + Asia
  - **State of MedEq.**
  - **3rd HospiRank.**

Today's guests

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Today's speaker

Mariana Romero Roy
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Global Health Intelligence
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Matthew Collins
Marketing Manager, Surgical
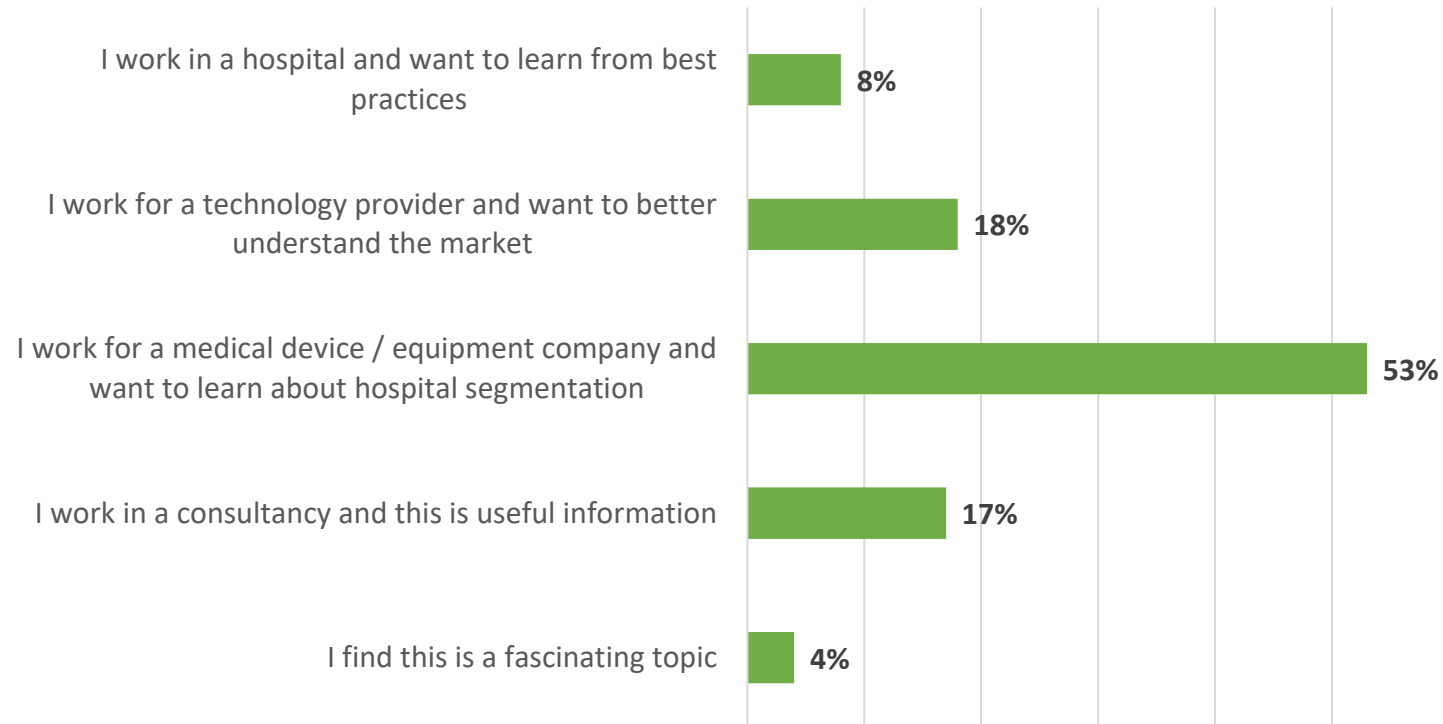Robotics LATAM – Medtronic
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Health Economics Superintendent –
Hospital Albert Einstein
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Agenda

1. **Latin America in the Global Healthcare Context**

2. **Technology in Latin America – The TechTier Adoption Model**

3. **The Demographics of High-Tech Institutions**

4. **Leading High-Tech Hospitals of LatAm**

5. **Questions & Answers**

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Poll Question #1: Why are you interested in hospital tech adoption?

I work in a hospital and want to learn from best practices — 8%

I work for a technology provider and want to better understand the market — 18%

I work for a medical device / equipment company and want to learn about hospital segmentation — 53%

I work in a consultancy and this is useful information — 17%

I find this is a fascinating topic — 4%

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Latin America in the Global Healthcare Context

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Latin America is home to nearly 1/4 of the world's hospitals

Number of Hospitals by Economy

- Developed economies 28%
- China 23%
- Latin America 22%
- Other emerging markets 27%
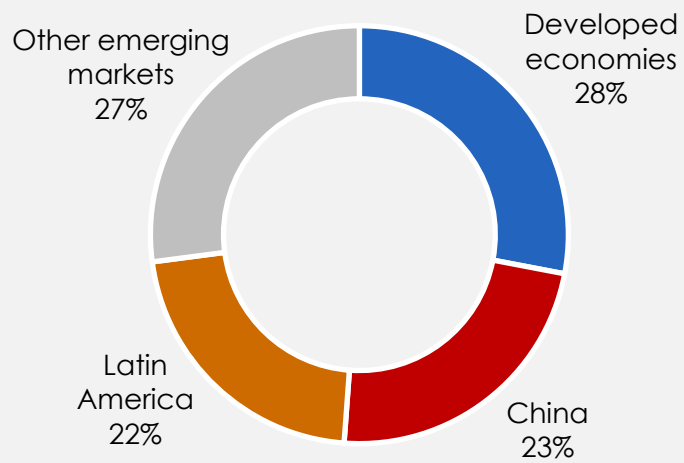
Number of Hospitals by Country

China
India
Japan
Brazil
Russia
United States
Mexico
Korea
Germany
Nigeria
France
Colombia
Argentina

Emerging markets
Developed economies
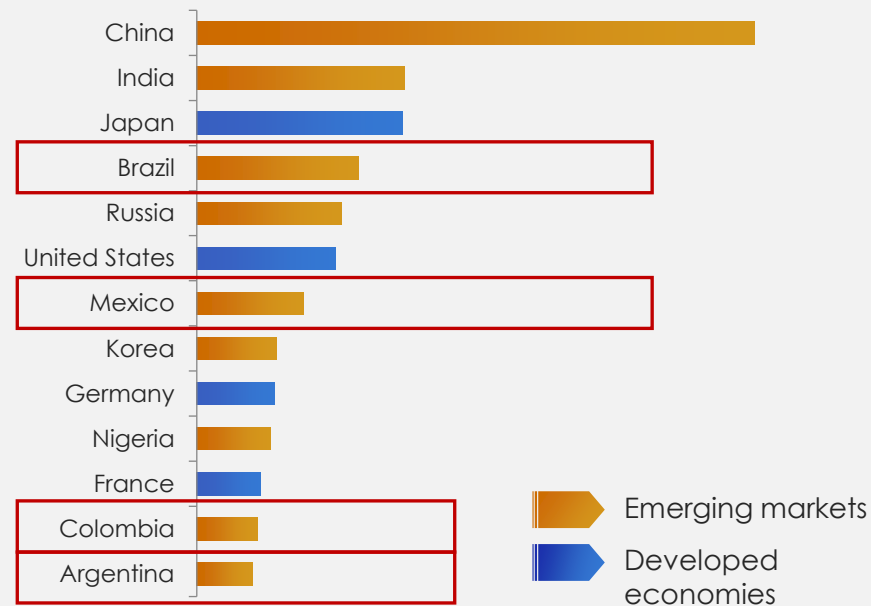
- There are 3x as many hospitals in emerging markets as there are in developed economies.
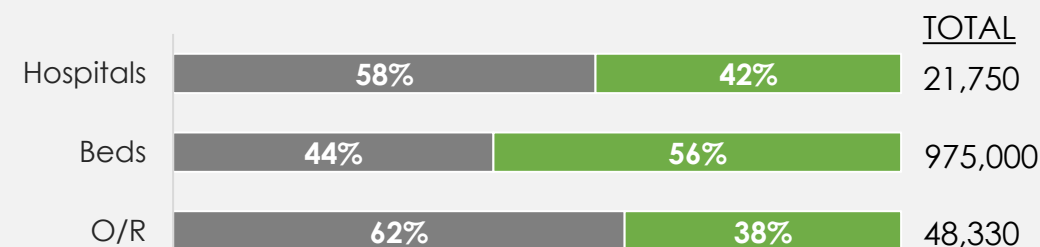- Out of the top 10 emerging markets, 4 are in Latin America.

The structure of hospitals limits ramp-up speed and capabilities

- Hospitals across Latin America are on average 3.5x smaller than those of the US.

- There is a vast size and infrastructure difference between between Public and Private institutions.
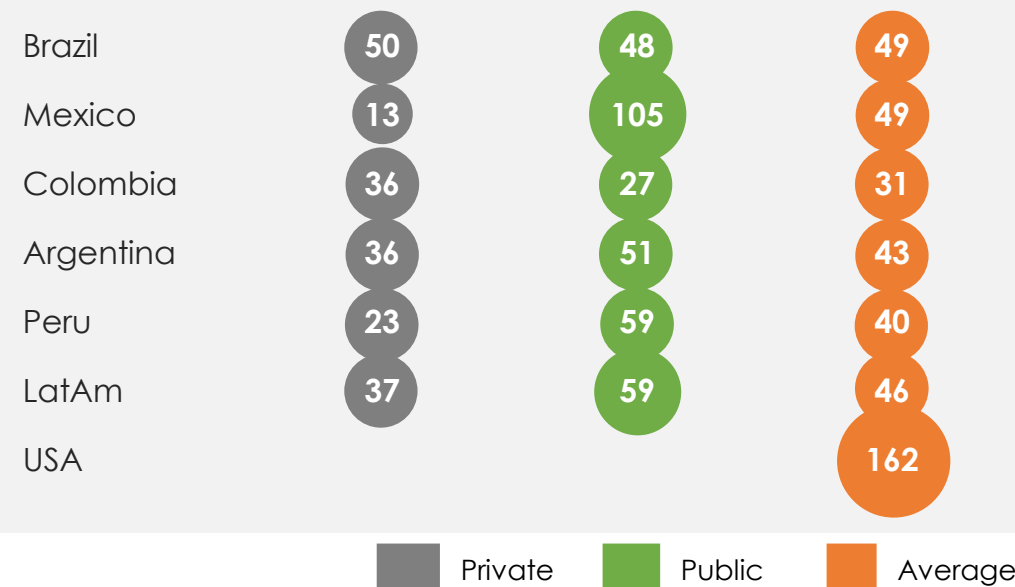

WHAT DOES THIS MEAN IN THE CONTEXT OF TECH ADOPTION?

- The hospital market is **more fragmented**, with many, smaller players.

- There are **fewer hospitals with the capacity** to develop centers of expertise (based on size / throughput), with **more hospitals tending to primary care**.

- Hospitals **don't have the same leveraging capabilities** as those in other regions in order to acquire tech equipment and expand their capacity.

Infrastructure Breakdown in LAC

	Private	Public	TOTAL
Hospitals	58%	42%	21,750
Beds	44%	56%	975,000
O/R	62%	38%	48,330

Average Hospital Size (# of beds)

|	Private	Public	Average
Brazil	50	48	49
Mexico	13	105	49
Colombia	36	27	31
Argentina	36	51	43
Peru	23	59	40
LatAm	37	59	46
USA			162

Private · Public · Average

The Role of Technology

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Poll Question #2: In your current role, how much do you use segmentation data to drive sales and marketing strategies?

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Institutions, Equipment and Professionals

Institutions

Equipment

Staff
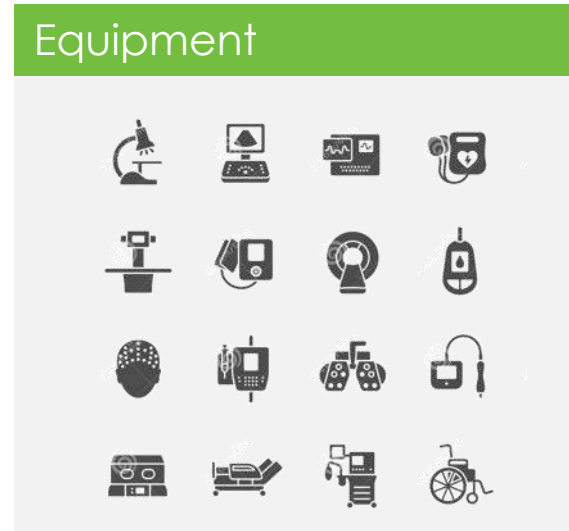
- 3 pillars are required to effectively run a healthcare system

  1. **Medical institutions** – such as hospitals, clinics, laboratories, diagnostic centers, etc.

  2. **Equipment** – such as capital equipment, devices, technologies, pharmaceuticals, etc.

  3. **Professional staff** – such as nurses, physicians, technicians, etc.

- If any of these three elements is missing, the healthcare system will not run effectively.

Sociedade Beneficente Israelita Brasileira Albert Einstein

- **Private healthcare system**
  - 1 Hospital with 592 beds
  - 5 Primary care clinics
  - 6 Ambulatory care units including emergency care

- **Pubic healthcare system**
  - 2 Hospitals with 418 beds in total
  - 13 Primary care units
  - 4 Ambulatory care units
  - 2 Emergency care units
  - 3 Psychosocial care centers
  - 2 Services of therapeutic residence
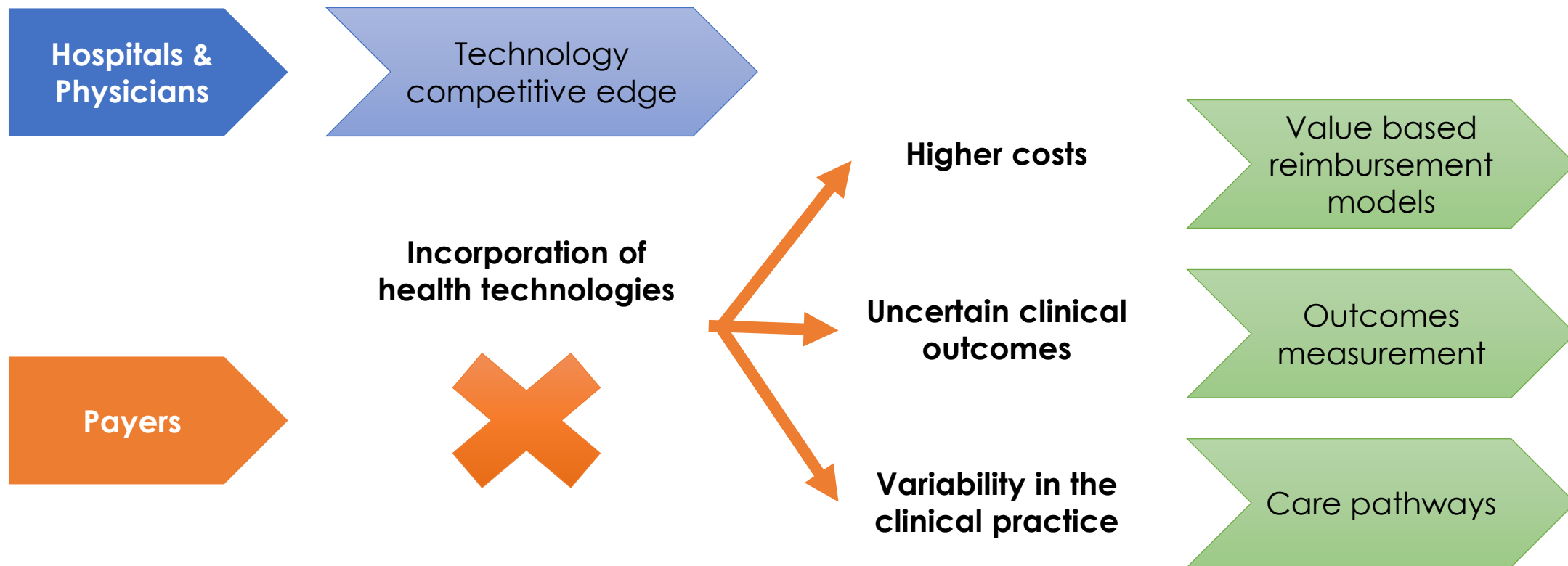
- **Teaching & Research Centers**

ALBERT EINSTEIN
Sociedade beneficente israelita brasileirA

THE WORLD'S **Best Hospitals** 2020

WORLD BEST HOSPITALS 2020
Newsweek
POWERED BY statista

ILLUSTRATION BY RYAN OLBRYSH

BY NEWSWEEK

38th

América economía
CLUSTER SALUD

1st

Viernes, 25/10/2019
En la clasificación hecha por América Economía, el Hospital Israelita Albert Einstein logró mantener el primer puesto nuevamente.

AméricaEconomía Intelligence

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Health Technology Assessment

Hospitals & Physicians

Technology competitive edge

Payers

Incorporation of health technologies

Higher costs

Uncertain clinical outcomes

Variability in the clinical practice

Value based reimbursement models

Outcomes measurement

Care pathways

ALBERT EINSTEIN
SOCIEDADE BENEFICENTE ISRAELITA BRASILEIRA

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Benefits of Technology

- **Improve outcomes**
  - More precise diagnostics
  - Higher quality of care
  - Reduced recovery times
  - Less invasive surgeries
  - Increase options for treatment

- **Attract talent**
  - Institutions with more sophisticated equipment can attract and retain talent more effectively

- **Position the hospital as a leader**
  - Be associated with the "best in class"
  - Gain visibility
  - Gain notoriety

- **Contribute to the advancement of healthcare**
  - Form part of elite research institutes

A Journey we must take together
Focus on People, Partnerships and Progress

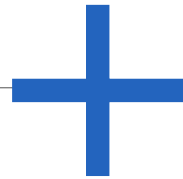Two keys to successful technology adoption:

Medtronic

THE RIGHT **TECHNOLOGY**

Collaborative innovation ensures we meet patient and customer needs in the most meaningful way.

+
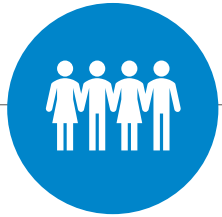
THE RIGHT **TRAINING**

Empowers customers to champion adoption in their hospital — and then optimize use.

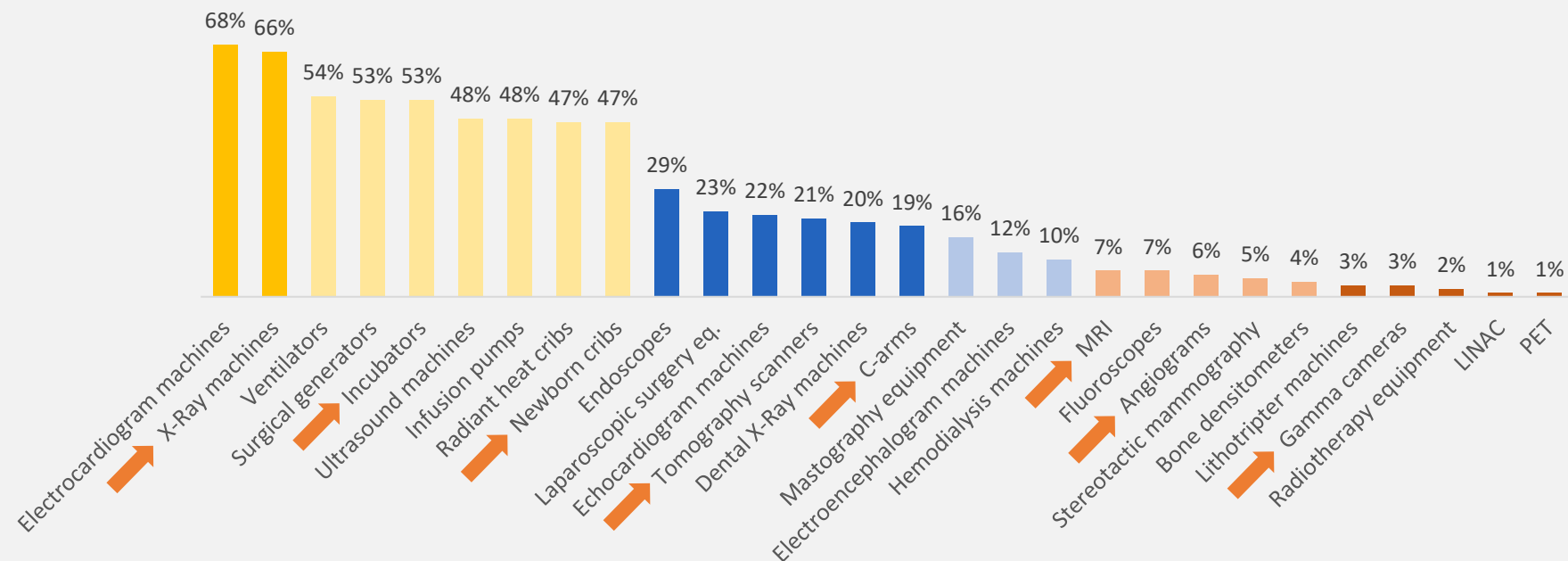**THE BEST RESULTS COME FROM RELATIONSHIPS BUILT ON TRUST AND OUR COMMON GOAL TO DO THE MOST GOOD FOR PATIENTS.**

Technology in Latin America –
The TechTier Adoption Model

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Presence of equipment is determined by healthcare needs, usage and costs

Presence * of Modalities in LatAm

NOTE

Data is derived from HospiScope – GHI's survey of hospitals where information on over 12,000 is updated every year.

While HospiScope covers over 17 countries, the data in this graphic focuses on LatAm's 5 major hospital markets: Brazil, Mexico, Colombia, Argentina, Chile.

The data focuses on hospitals only (and does not cover other points of care).

* <u>Presence</u> refers to the % of hospitals that carry said equipment.

- From a healthcare perspective, **Presence** denotes a response to health needs and requirements.

  - Equipment used to diagnose and treat common needs are more present than specialized equipment (66% of hospitals have X-ray machines versus 3% of hospitals have Gamma cameras).

  - Even at a high level it is possible to see Tiers of equipment presence within hospitals.

  - Other factors, such as availability of qualified HR to operate the equipment is an important, yet secondary role.

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Prevalence increases as some modalities are present multiple times within a hospital

- Certain basic equipment – such as Infusion Pumps, Cribs, Ventilators and X-Ray machines – are not only present in a majority of hospitals, but there are often numerous such equipment within a single institution.

- From a healthcare perspective, **Prevalence** denotes the demand for specific services as well as the institution's **Capacity** to respond to said demand.

NOTE

Data is derived from HospiScope – GHI's survey of hospitals where information on over 12,000 is updated every year.

While HospiScope covers over 17 countries, the data in this graph focuses on LatAm's 5 major hospital markets: Brazil, Mexico, Colombia, Argentina, Chile.

The data focuses on hospitals only (and does not cover other points of care).

* Prevalence refers to the total number of equipment per hospital, by modality.

Prevalence * of Modalities in LatAm Hospitals

Tier	Modality	TOTAL	PER H.
TIER 1	PET	155	0.01
TIER 1	LINAC	303	0.02
TIER 1	Radiotherapy equipment	416	0.03
TIER 1	Lithotripter machines	493	0.03
TIER 1	Gamma cameras	566	0.03
TIER 2	Bone densitometers	842	0.05
TIER 2	Stereotactic mammography	847	0.05
TIER 2	Angiograms	1,115	0.07
TIER 2	MRI	1,353	0.08
TIER 2	Fluoroscopes	1,596	0.10
TIER 3	Electroencephalogram…	2,606	0.16
TIER 3	Mastography equipment	2,796	0.17
TIER 3	Tomography scanners	3,871	0.24
TIER 3	Dental X-Ray machines	3,942	0.24
TIER 3	C-arms	3,971	0.24
TIER 3	Echocardiogram machines	5,396	0.33
TIER 4	Laparoscopic surgery eq.	6,920	0.42
TIER 4	Ultrasound machines	12,529	0.77
TIER 4	Surgical generators	13,378	0.82
TIER 4	Endoscopes	13,460	0.83
TIER 5	Hemodialysis machines	15,726	0.96
TIER 5	X-Ray machines	22,494	1.38
TIER 5	Radiant heat cribs	27,356	1.68
TIER 5	Clinical Analysis Laboratory	36,898	2.26
TIER 5	Incubators	38,071	2.34
TIER 6	Newborn cribs	68,463	4.20
TIER 6	Ventilators	91,251	5.60
TIER 6	Electrocardiogram machines	114,778	7.04
TIER 6	Infusion pumps	302,803	18.57

The TechTier Adoption Model

- The TechTier Adoption Model gives users an easy understanding of a hospital's technology adoption based on the type of equipment it has implemented within the facility.
  - Hospitals of a similar technology adoption level are regrouped and can be compared amongst each other.

- Medical device and equipment suppliers can then work with individual institutions to improve help them reach their goals both in terms of technology adoption as well as breadth of service.
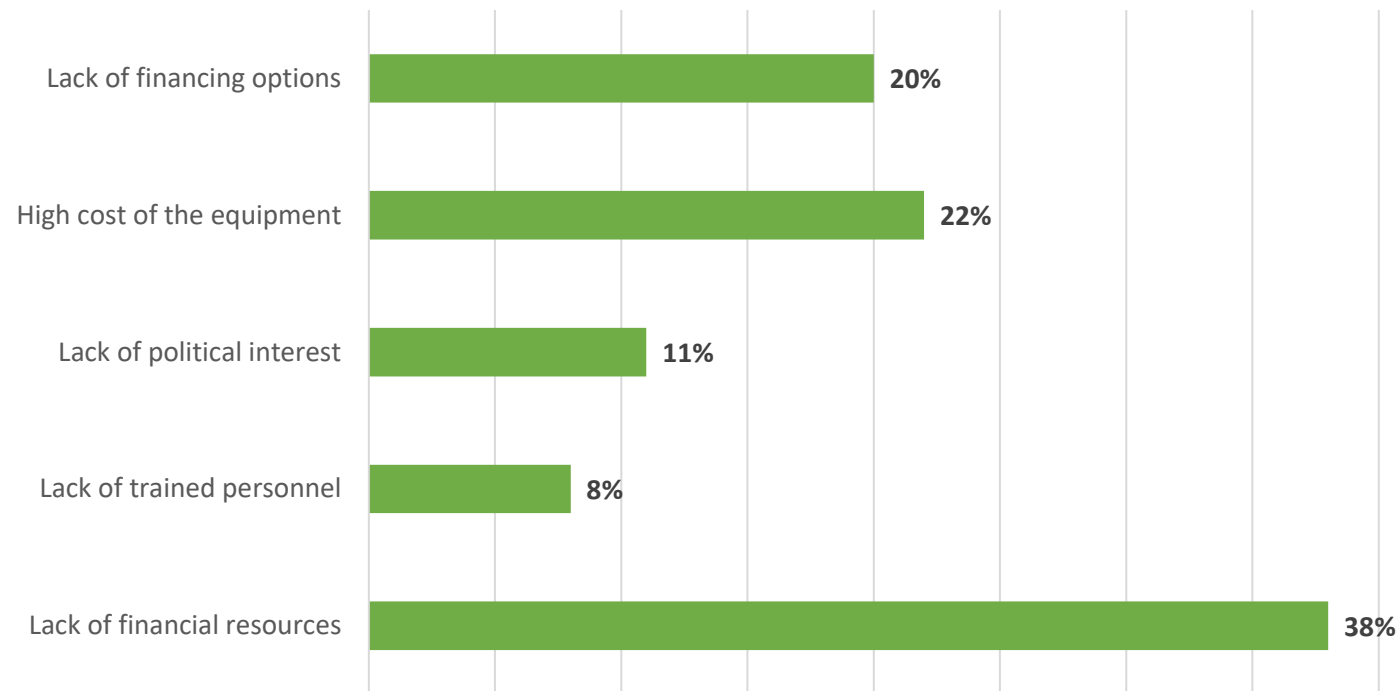
TechTier Adoption Model

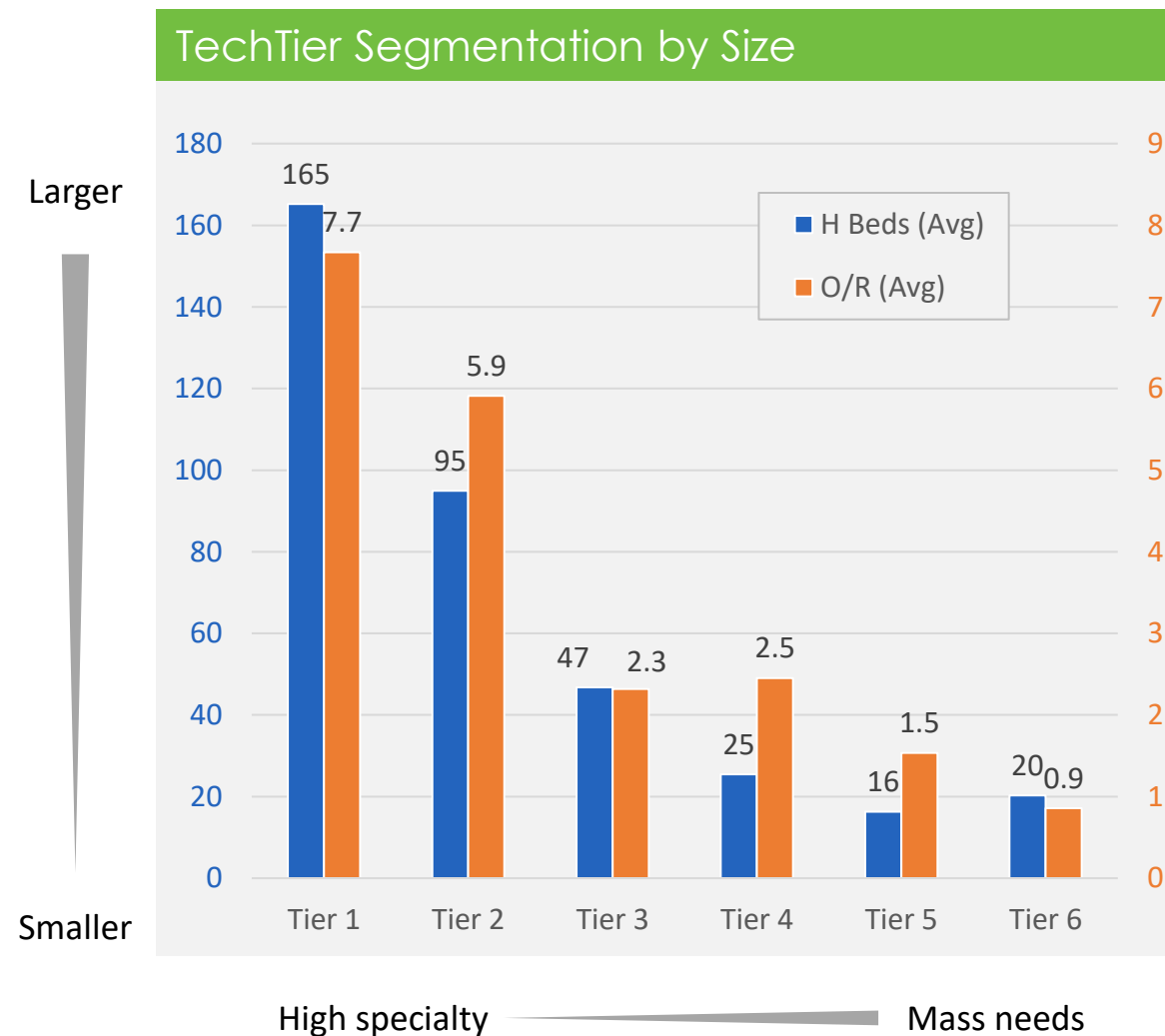| TIER	EQUIPMENT	PREVALENCE	% HOSP.
1	• PET • LINAC • Radiotherapy eq. • Lithotripter machine • Gamma camera	1 – 5 eq. /100 H	5%
2	• Bone densitometer • Stereotactic mammography • Angiograms • MRI • Fluoroscopes	5 – 15 eq. /100 H	20%
3	• Electroencephalogram • Mammography eq. • Tomography scanners • C-arms • Echocardiogram machines	15 – 35 eq. /100 H.	50%
4	• Laparoscopic surgery eq. • Ultrasound machines • Surgical generators • Endoscopes	35 – 90 eq. /100 H	85%
5	• Hemodialysis machines • X-Ray machines • Radiant heat cribs • Incubators	90 – 250 eq. /100 H.	95%
6	• Newborn cribs • Ventilators • Electrocardiogram machines • Infusion pumps	> 250 eq. /100 H	100%

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The Demographics of High-Tech Institutions

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Poll Question #3: In your opinion, what are the biggest challenges to technology adoption in Latin America?

Lack of financing options — 20%
High cost of the equipment — 22%
Lack of political interest — 11%
Lack of trained personnel — 8%
Lack of financial resources — 38%

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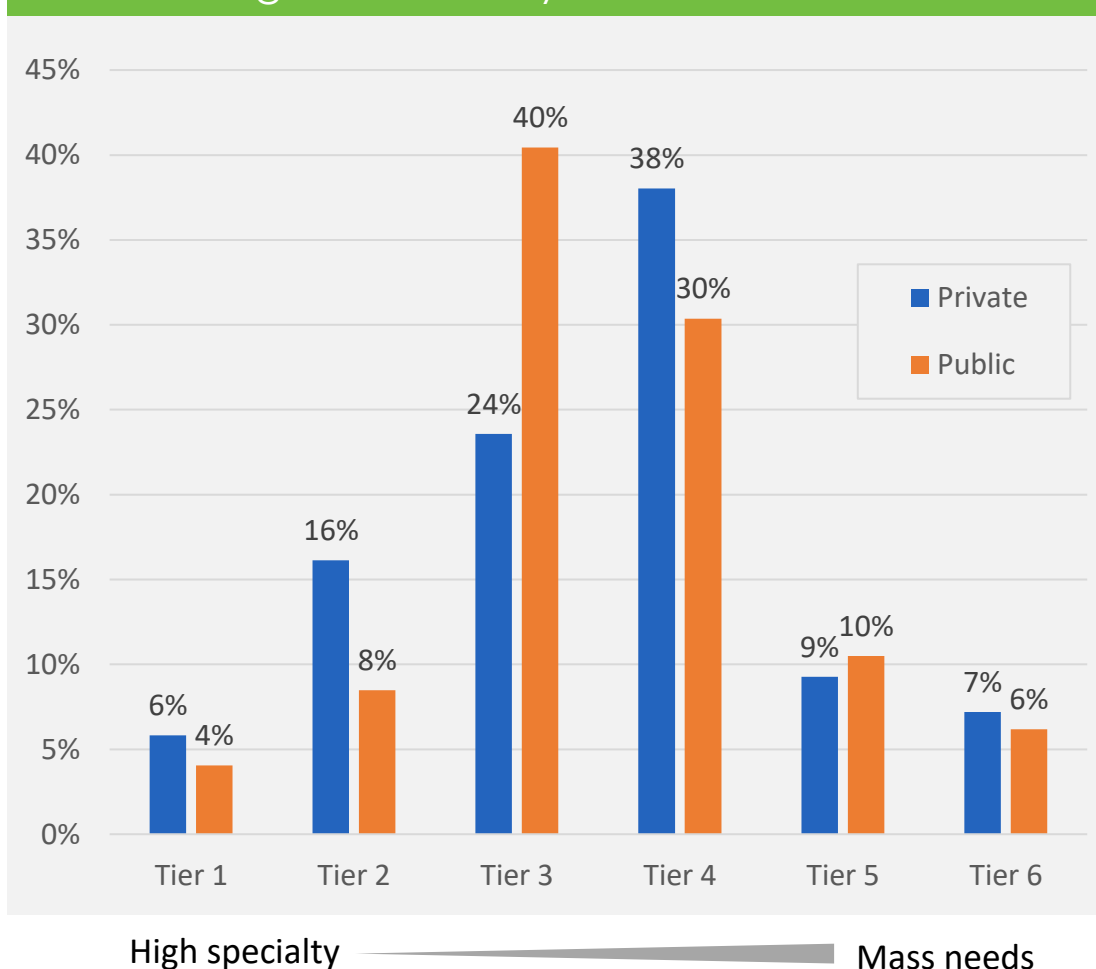# The larger the hospital, the more tech-savvy it tends to be

- There is a direct correlation between size and tech savviness.

- Larger hospitals – measured in both bed count and number of operating rooms – tend to have the greatest propensity to adopt technological solutions.

- These hospitals also have the **capability** (financial, HR, technological) and are in the **conditions** (throughput, leveraging, access to financing) to be able to adopt and incorporate such equipment into its facilities.

TechTier Segmentation by Size

Larger

Smaller

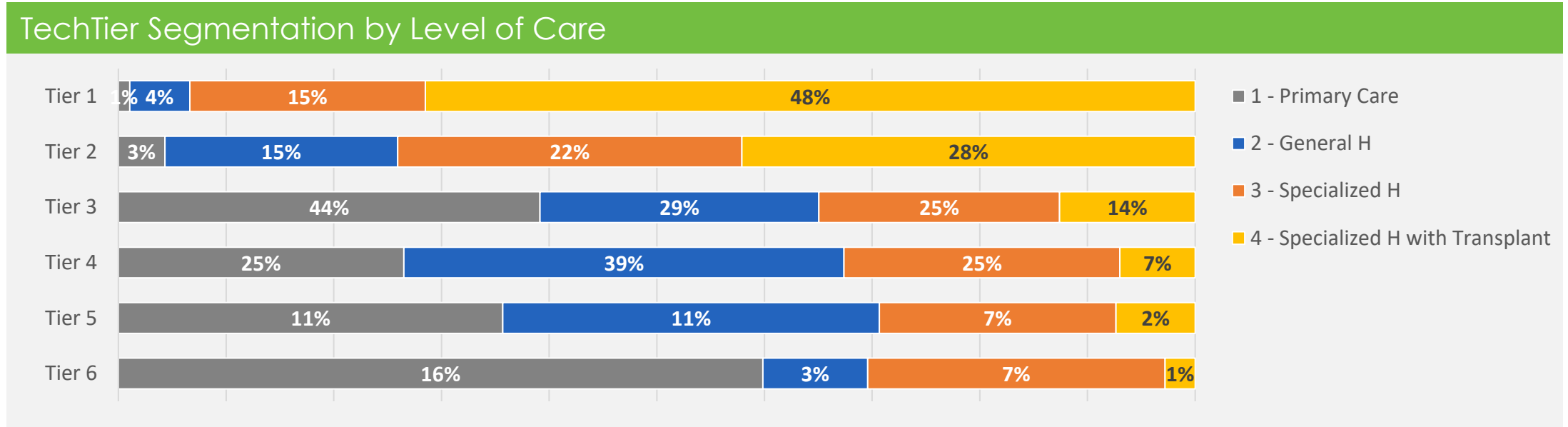|	Tier 1	Tier 2	Tier 3	Tier 4	Tier 5	Tier 6
H Beds (Avg)	165	95	47	25	16	20
O/R (Avg)	7.7	5.9	2.3	2.5	1.5	0.9

High specialty — Mass needs

Nature of establishment is nearly irrelevant to tech adoption

- Latin America has reputable high-specialty hospitals, both in the public and private sector.

  - Public hospitals tend to be larger, thus enabling a higher throughput of patients and increasing the number of cases a physician may see.

  - Many physicians make a name for themselves by working in the public sector, where they manage a high volume of cases.

- Tech adoption occurs both in Public and Private institutions across Latin America.

  - Tech adoption is slightly more prevalent in Private institutions.

- From an access to equipment standpoint, wait times are considerably shorter in the Private sector.

  - < 20% of the region's population has access to private healthcare.

  - ~80% of the population gets served by the public sector.

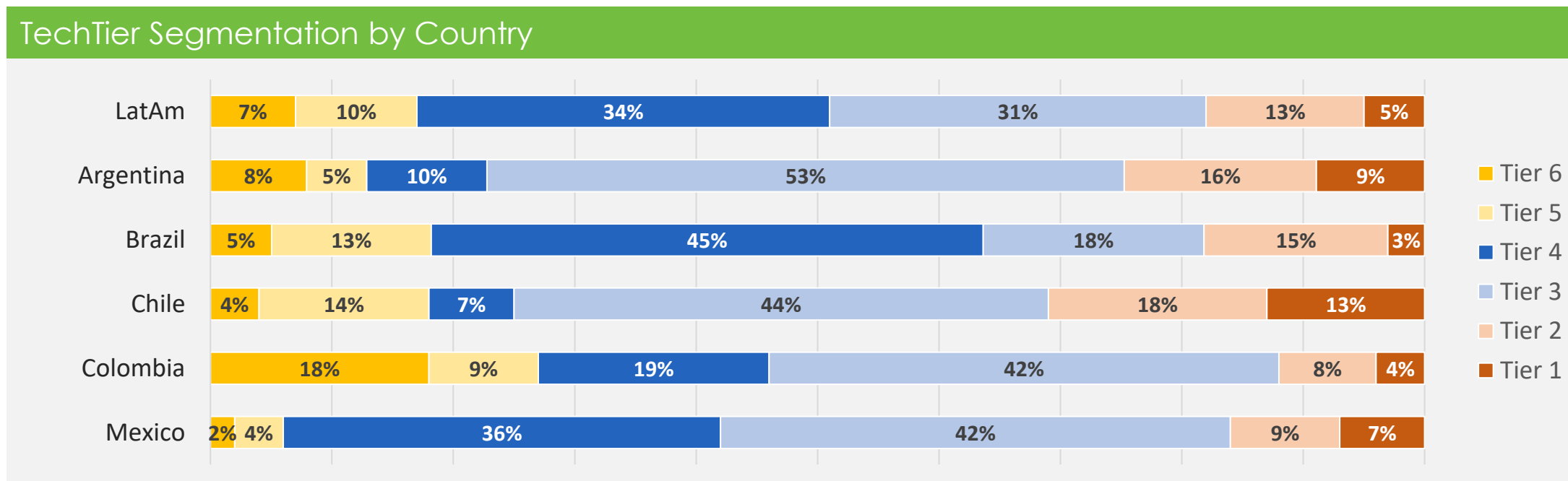## TechTier Segmentation by Nature of Establishment

Tier	Private	Public
Tier 1	6%	4%
Tier 2	16%	8%
Tier 3	24%	40%
Tier 4	38%	30%
Tier 5	9%	10%
Tier 6	7%	6%

High specialty → Mass needs

The greater the level of care, the more tech savvy the hospital tends to be

TechTier Segmentation by Level of Care

	1 - Primary Care	2 - General H	3 - Specialized H	4 - Specialized H with Transplant
Tier 1	1%	4%	15%	48%
Tier 2	3%	15%	22%	28%
Tier 3	44%	29%	25%	14%
Tier 4	25%	39%	25%	7%
Tier 5	11%	11%	7%	2%
Tier 6	16%	3%	7%	1%

- There is a direct correlation between the level of care and tech savviness.

- More specialized hospitals tend to be equipped with higher technology instruments.

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Chile is the regional leader in tech penetration

TechTier Segmentation by Country

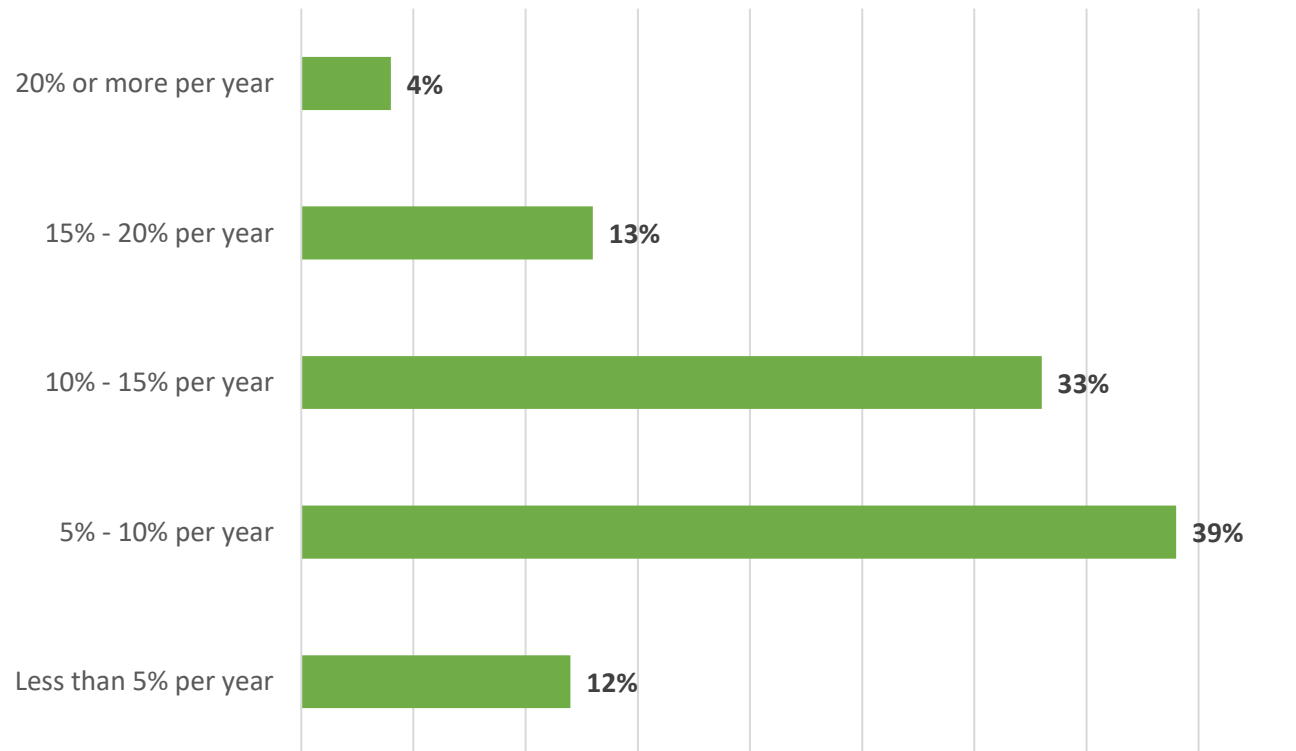| Country	Tier 6	Tier 5	Tier 4	Tier 3	Tier 2	Tier 1
LatAm	7%	10%	34%	31%	13%	5%
Argentina	8%	5%	10%	53%	16%	9%
Brazil	5%	13%	45%	18%	15%	3%
Chile	4%	14%	7%	44%	18%	13%
Colombia	18%	9%	19%	42%	8%	4%
Mexico	2%	4%	36%	42%	9%	7%

- On a regional standpoint, Chile is the country with the highest proportion of high-tech hospitals (Tier 1 & 2).

  - Hospitals in Chile have an average size of 106 beds (compared to 46 in the regional average), enabling institutions to leverage their infrastructure to invest in highly specialized capital equipment.

  - In contrast, hospitals in Colombia have the lowest average number of beds, and in turn, have the lowest amount of high-tech penetration.

Leading High-Tech Hospitals of LatAm

Poll Question #4: At what rate will tech adoption evolve in Latin America over the next 5 years

20% or more per year	4%
15% - 20% per year	13%
10% - 15% per year	33%
5% - 10% per year	39%
Less than 5% per year	12%

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Recognizable Tier 1 Hospitals in Latin America

BRAZIL	MEXICO	COLOMBIA	ARGENTINA	CHILE
HOSPITAL ISRAELITA ALBERT EINSTEIN	HOSPITAL DE ESPECIALIDADES 25 MONTERREY	FUNDACIÓN VALLE DEL LILI SEDE BETANIA	HOSP. NAVAL BS.AS. CIRUJANO MAYOR DOCTOR PEDRO MALLO	HOSPITAL PADRE ALBERTO HURTADO (SAN RAMÓN)
NORTECOR HOSPITAL DE CLÍNICAS	HOSPITAL UNIVERSITARIO DOCTOR JOSÉ ELEUTERIO GONZÁLEZ	CLÍNICA EL ROSARIO SEDE EL TESORO	FUND. MÉDICA DE RÍO NEGRO Y NEUQUÉN Y CLINICA RAD. DEL SUR	HOSPITAL CARLOS VAN BUREN (VALPARAÍSO)
HC DA FMUSP INSTITUTO DO CORACAO INCOR SÃO PAULO	HOSPITAL MÉDICA SUR	FUNDACIÓN VALLE DEL LILI	HOSPITAL UNIVERSITARIO AUSTRAL	INST NACIONAL DEL CÁNCER DOCTOR CAUPOLICÁN PARDO CORREA
IRMANDADE DA SANTA CASA DE MISERICORDIA DE PORTO ALEGRE	HOSPITAL GENERAL DE MÉXICO DOCTOR EDUARDO LICEAGA	FUNDACIÓN SANTA FE DE BOGOTÁ	HOSPITAL COMPLEJO MÉDICO DE LA POLICIA FEDERAL CHURRUCA - VISCA	HOSPITAL CLÍNICO REGIONAL (VALDIVIA)
A C CAMARGO CANCER CENTER	HOSPITAL DE ESPECIALIDADES 1 LEÓN	HOSPITAL UNIVERSITARIO DEPARTAMENTAL DE NARINO	CEMYN - CLÍNICA ROCA S.A	CLINICA ONCOLÓGICA ARTURO LOPEZ PEREZ
HOSPITAL DAS CLÍNICAS DA UNICAMP DE CAMPINAS	HOSPITAL DE ESPECIALIDADES PUEBLA	PROMOTORA MÉDICA LAS AMÉRICAS S.A	INSTITUTO CENESA S.A.	CLÍNICA ALEMANA DE TEMUCO
HOSP DO SERV PUB EST FCO MORATO DE OLIVEIRA SÃO PAULO	HOSPITAL ZAMBRANO HELLION	ORGANIZACIÓN CLÍNICA BONNADONA PREVENIR S.A.	INSTITUTO ALEXANDER FLEMING	HOSPITAL CLÍNICO MAGALLANES DOCTOR LAUTARO NAVARRO AVARIA
HOSPITAL AMARAL CARVALHO JAU	HOSPITAL ÁNGELES CHIHUAHUA	CLINICA LA ASUNCIÓN	INSTITUTO DE CARDIOLOGÍA Y CIRUGIA CARDIOVASCULAR	CLÍNICA REÑACA
FUNDACÃO PIO XII BARRETOS	HOSPITAL DE ONCOLOGÍA CENTRO MÉDICO NACIONAL SIGLO XXI	CENTRO MÉDICO IMBANACO CMI	CLÍNICA LA PEQUEÑA FAMILIA	HOSPITAL CLÍNICO REGIONAL DR. GUILLERMO GRANT BENAVENTE
HOSPITAL DO CORAÇÃO	INSTITUTO NACIONAL DE CANCEROLOGÍA	EMPRESA SOCIAL DEL ESTADO HOSPITAL UNIVERSITARIO DE LA SAMARITANA	CLÍNICA CENTRO MÉDICO SAN LUCAS	
HOSPITAL DE CLÍNICAS	CHRISTUS MUGUERZA HOSPITAL ALTA ESPECIALIDAD		SANATORIO ESPAÑOL	
HOSPITAL SÍRIO LIBANÊS	HOSPITAL STAR MÉDICA CIUDAD JUÁREZ		CLÍNICA PERGAMINO	

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5 Recommendations for Technology Adoption

1. **Adopt a 20+ year outlook**

   - Mindset: Consider Obesity, Ageing population, Pandemics, Patient-centric, Value-based care

2. **Get ahead of the curve**

   - The first movers are setting the standard for care

3. **Anticipate remote connectivity and portability**

   - Think less infrastructure and more care (ex: Home Care)

4. **Build to scale – Have an adoption roadmap**

   - Investments should be made end-to-end and scalable over time (i.e. sustain high patient growth)

5. **Seek system efficiencies**

   - Heightened collaboration between institutions (Portable Health Records)
   - Standardized communication standards

HOSPISCOPE

SURGISCOPE

The world's largest hospital database focused on emerging markets.

HOSPISCOPE will let you gain unparalleled market knowledge, including commercial target identification, key account insights, blind spot reduction and market mapping.

✓ 89% coverage, 55% fill rate
✓ 17 countries
✓ Beds, Equipment, Installed base, Technology, Infrastructure

Real-world procedural data to help you target your clients more effectively.

SURGISCOPE will let you gain detailed knowledge on how many procedures are being conducted and in which institutions.

✓ Brazil, Mexico, Colombia, Chile
✓ Over 2 M procedures mapped
✓ Annual data by institution

32

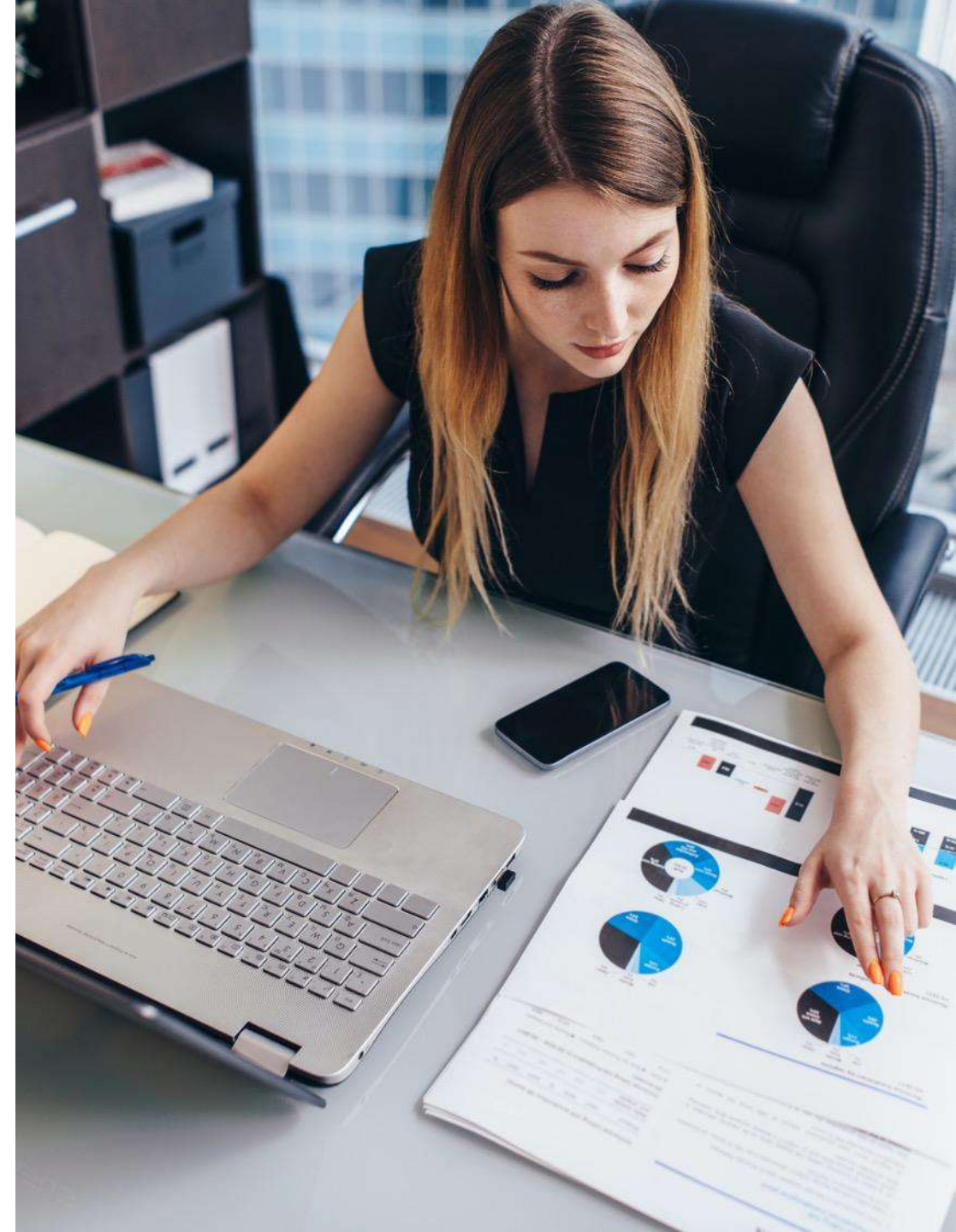INTELLIGENCE.HEALTH

SHARESCOPE

SHARESCOPE allows equipment and device manufacturers to track the **size of the market** and their **market share** in a consistent and accurate manner.

✓ 95% accuracy
✓ Quarterly updates
✓ Global product catalogue & SKUs

IN-SCOPE

Global Health Intelligence is your source for actionable market intelligence assignments.

✓ Opportunity analysis
✓ Positioning & competitive analysis
✓ Market sizing and segmentation
✓ Partner search & market due diligence
✓ Best practices

Questions and Answers

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Let's continue the conversation…

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