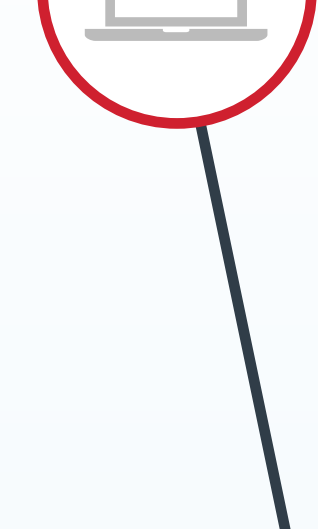



Nine ways to harness the **INTERNET** of **THINGS** in health care




The number of intelligent connected devices that make up the internet of things (IoT) continues to expand, creating new opportunities to accumulate vast amounts of data in clinical settings and in patients' daily lives to improve health outcomes and optimize business operations.

To make some sense of the opportunities for the IoT in health care, **we've identified some data categories and representative measures** you can start taking advantage of today.



406 million
Number of connected medical IoT devices in 2018¹

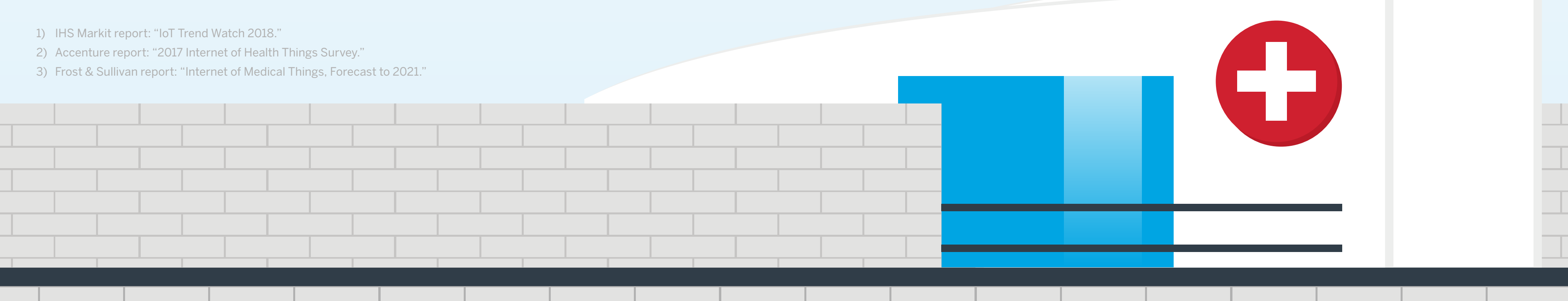


73%
Percentage of health care executives who think IoT will be disruptive within three years²

≈10%
Average percentage of annual IT budgets health care organizations allocate to investments for IoT solutions²

≈60%
Percentage of health care organizations that have adopted IoT in some capacity³

1) IHS Market report: "IoT Trend Watch 2018."
2) Accenture report: "2017 Internet of Health Things Survey."
3) Frost & Sullivan report: "Internet of Medical Things, Forecast to 2021."



Gauge Patient Experience

Are you meeting all of your patients' needs? Intelligent personal assistants and smart consoles can provide on-demand services, answer basic questions, reduce the workload of busy staff, and help boost the patient experience.

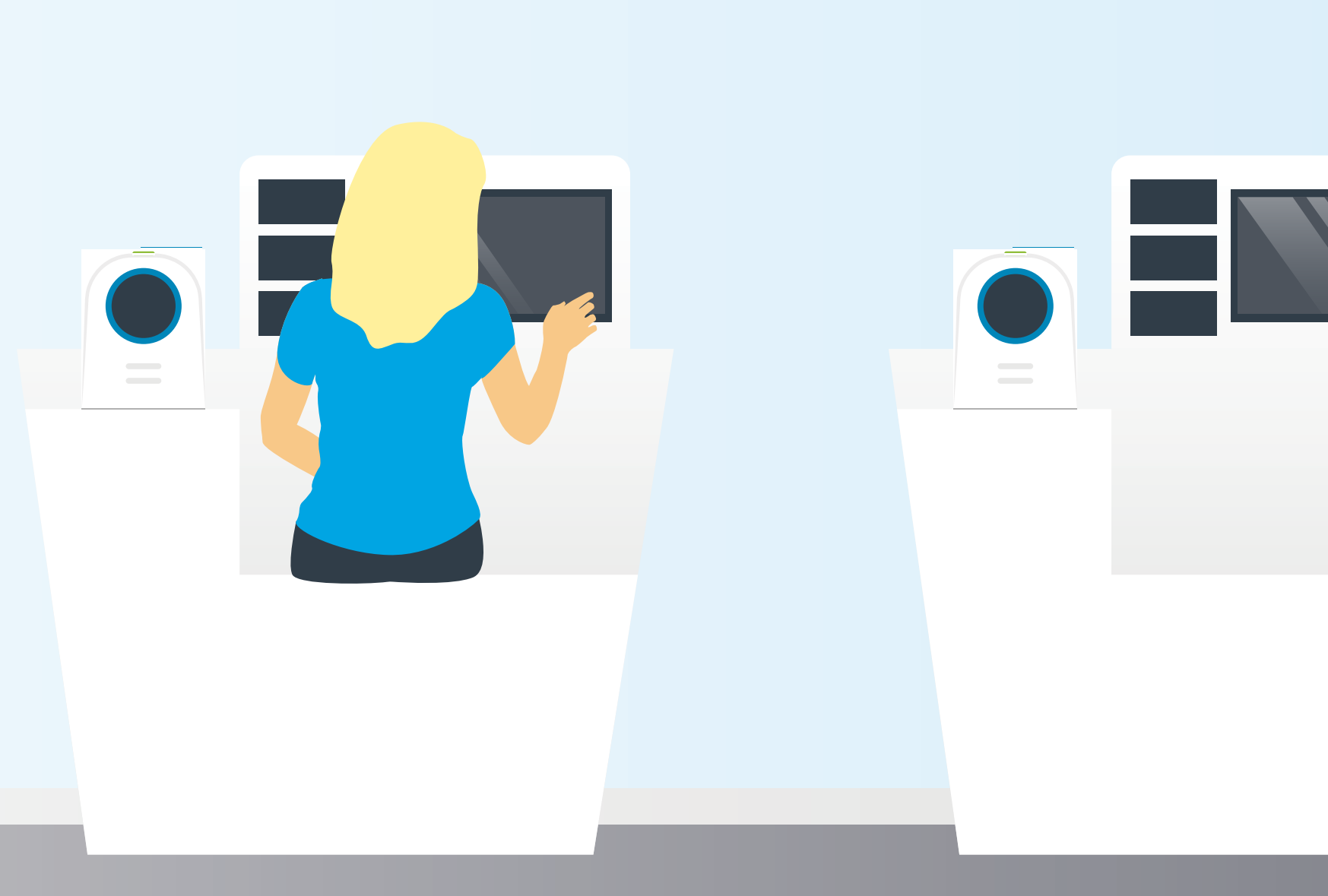
- SAMPLE MEASURES**
- Patient sentiment and/or mood
 - Patient requests and questions



Evaluate Patient Vitals

Are you able to continuously evaluate your patients' core clinical measurements? Blood pressure monitors, blood glucose meters, and heart rate monitors can help detect and track medical problems whether in a medical setting or at home.

- SAMPLE MEASURES**
- Heart rate
 - Blood pressure
 - Blood glucose
 - Temperature
 - Respiratory rate



Determine Location

Do you know where your patients and staff are? Sensor-based technologies such as smart chips, real-time location systems (RTLS), and beacons can better orchestrate the flow of patients, staff, or equipment, while also guiding visitors throughout your site.

- SAMPLE MEASURES**
- Patient/staff tracking
 - Direction/movement



Manage Supply Chain

Are there enough medical supplies? Bar code scanners, radio frequency identification (RFID) tags, and other sensors placed in cabinets or on equipment can reduce manual processes related to inventory checks, recalls, and maintenance.

- SAMPLE MEASURES**
- Inventory
 - Asset location and maintenance
 - Access control



Assess the Environment

How are your patients' health outcomes affected by their surroundings? Thermostats, allergen sensors, and other smart meters can help analyze and regulate environmental characteristics that may otherwise go unnoticed.

- SAMPLE MEASURES**
- Temperature and humidity
 - Pollen and dust
 - Sound
 - Smoke and CO₂
 - Radiation



Analyze Sleep Patterns

Are your patients getting enough quality sleep? Sleep tracker apps, electroencephalography (EEG) sensors, and mattress sensors can help analyze how much rest patients receive each night, which can have multiple consequences for health outcomes.

- SAMPLE MEASURES**
- Sleep phases
 - Total sleep
 - Disruptions



Monitor Medication Adherence

Do your patients take their medications as prescribed? Smart pill bottles, ingestible sensors, and smart infusion pumps can allow your team to remotely monitor adherence or configure an automated drug delivery system.

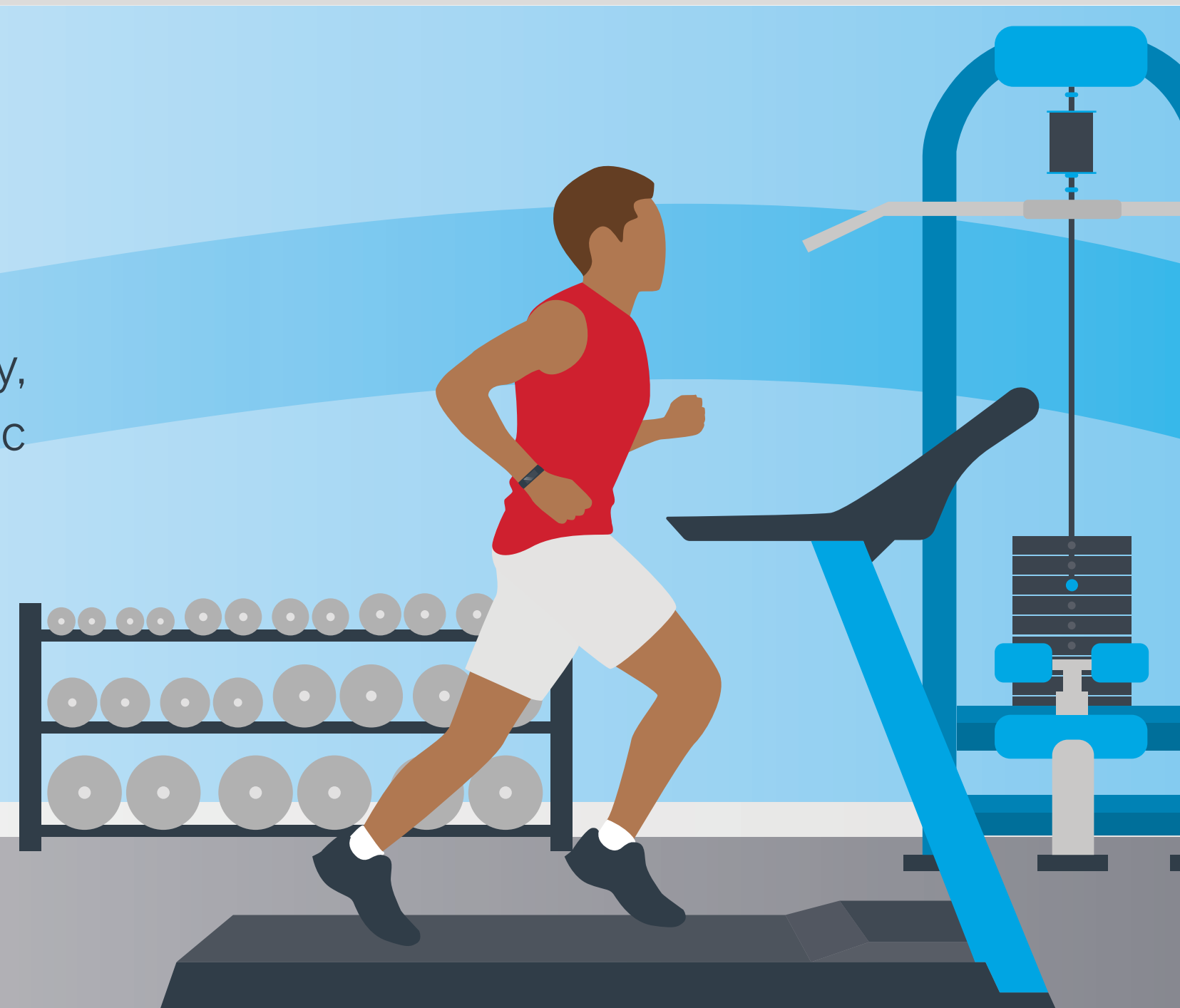
- SAMPLE MEASURES**
- Dose and time
 - Ingestion
 - Pill quantities



Track Activity

Do your patients get enough exercise? Activity trackers, smart watches, and smart clothing can help collect data on daily physical activity, allowing you to analyze healthy behavior, proactively address chronic conditions, or speed up recovery.

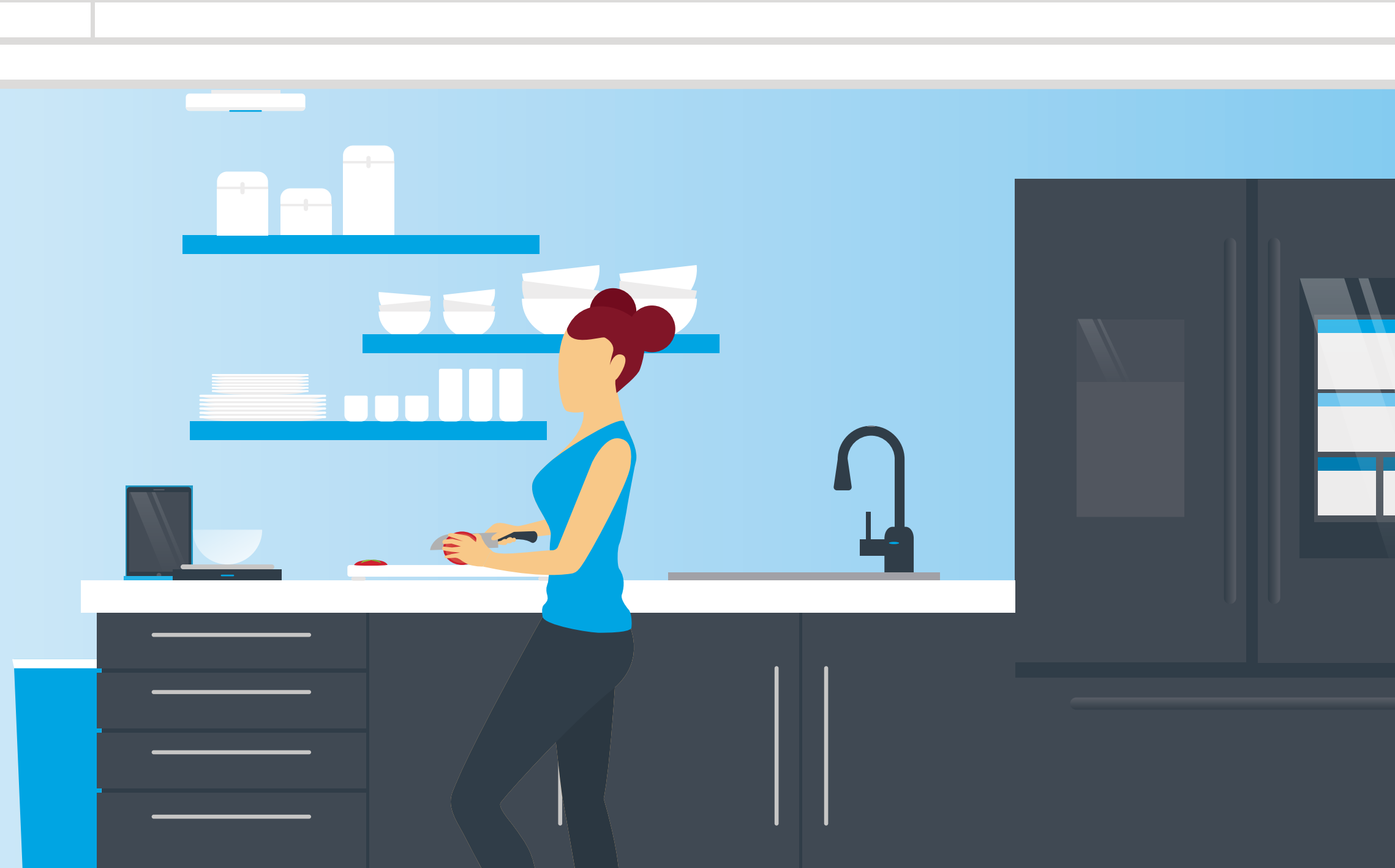
- SAMPLE MEASURES**
- Steps/distance traveled
 - Elevation change
 - Calories burned
 - Speed and acceleration
 - Rest
 - Posture and gait



Improve Diet and Nutrition

Do your patients have healthy eating habits? Smart scales, mobile diet apps, and smart kitchen appliances can keep track of daily food intake and encourage patients to be cognizant of how nutrition affects their health.

- SAMPLE MEASURES**
- Meal nutrition profiles
 - Caloric intake
 - Body weight and fat percentage



Ready to assess the IoT opportunities in your health system?

Download the full white paper for more details on IoT in health care.

advisory.com/hcita/HealthCareIoT

