World's Best Smart Hospitals 2021

Methodology
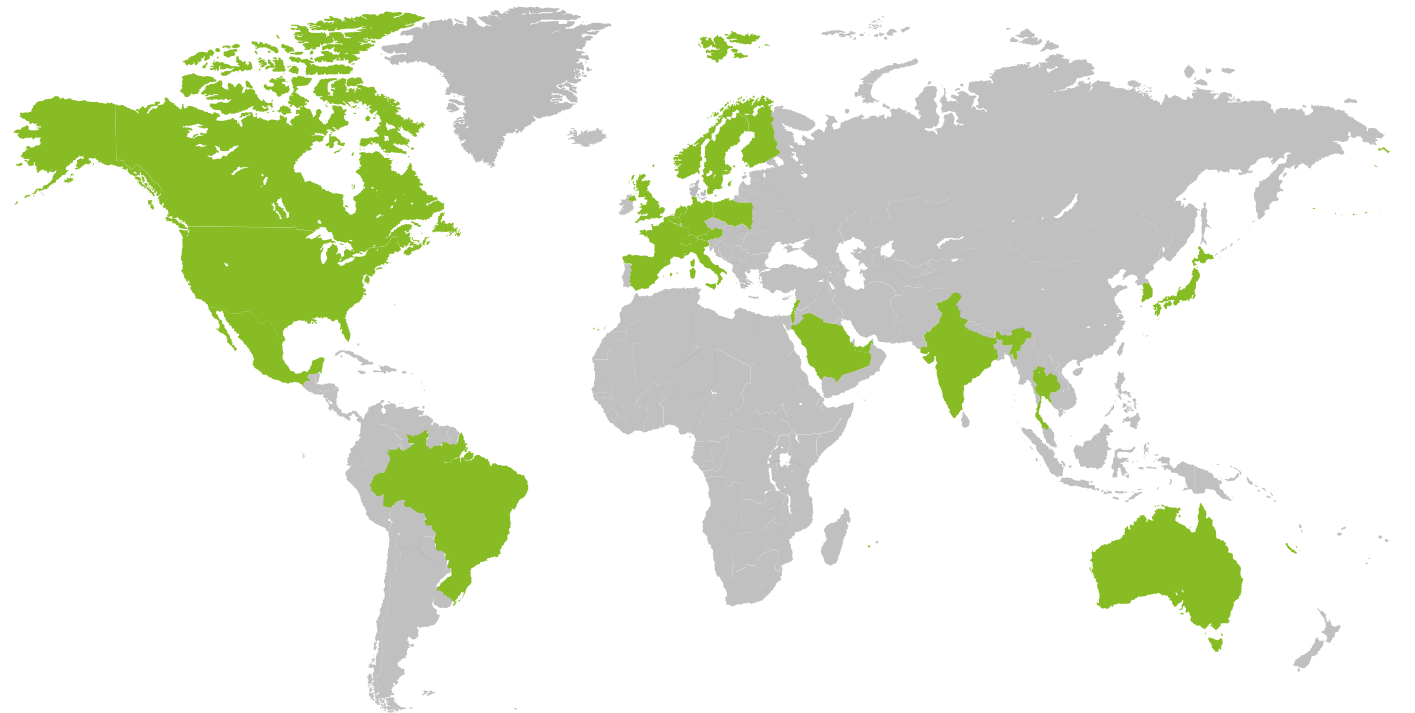
Methodology – World's Best Smart Hospitals 2021

Summary

- The **World's Best Smart Hospitals 2021 ranking** awards the leading 250 hospitals in the field of smart technologies.

- The ranking process is based on **three main steps:**
  1. **In-depth interviews with Smart Hospital experts** to identify relevant categories and generate questions for the international online survey
  2. **International online survey:** hospital managers and health care professionals with knowledge about smart hospitals were asked to recommend leading Smart Hospitals across the globe
  3. **Desk research for every nominated hospital** as validation for this hospital's achievements

- Survey participants were asked for recommendations in five sub-categories. Participants also had the opportunity to name an additional category which they consider relevant in the context of Smart hospitals. The five categories were: **Digital Surgery, Digital Imaging, Artificial Intelligence, Telehealth** and **Electronic Medical Records.**

- Participants were also asked to assess confidence in their assessment of Smart Hospitals, which was used to determine individual weights for the recommendations.

- During the survey period from February to March 2021, over 13,000 votes were collected in the survey. In addition to the quantitative information, it was also possible to provide qualitative context for the selection via a text field.

- A score was calculated for each hospital based on the number of recommendations in each sub-category. International recommendations were weighted higher than national recommendations (60:40), reinforcing the international focus of this ranking.

- The preliminary results were reviewed by a board of experts consisting of renowned medical professionals with knowledge about Smart Hospitals
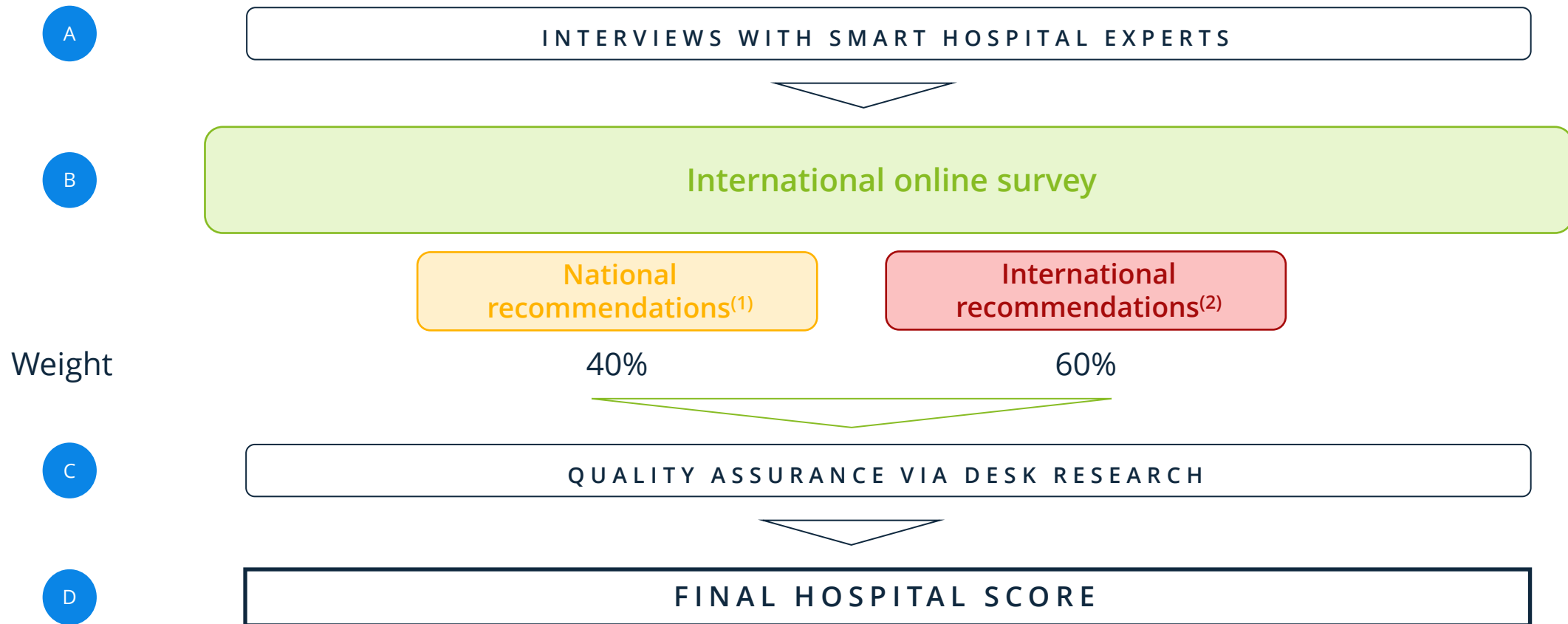
The Top 250 list includes Smart Hospitals from 26 different countries

Country	Hospitals awarded
United States	89
Germany	21
France	15
Italy	13
Canada	12
United Kingdom	11
South Korea	10
Japan	10
Spain	8
Switzerland	8
Singapore	7
Australia	7
Denmark	5
The Netherlands	5
Israel	4
India	3
Norway	3
Brazil	3
Belgium	3
Finland	3
Sweden	2
United Arab Emirates	2
Austria	2
Saudi Arabia	2
Lebanon	1
Thailand	1

A score was calculated for each hospital based on a multi-step approach

Ranking process & scoring model

A — INTERVIEWS WITH SMART HOSPITAL EXPERTS

B — International online survey

National recommendations[1]

International recommendations[2]

Weight — 40% — 60%

C — QUALITY ASSURANCE VIA DESK RESEARCH

D — FINAL HOSPITAL SCORE

(1) Recommendations from peers from the respective country (for each individual hospital)
(2) Recommendations from peers from other countries

Experts in the field of Smart Hospitals were interviewed to develop the questionnaire for the online survey

A In-depth interviews with Smart Hospital experts were conducted in January & February 2021

EXPERTS

- Prof. Dr. Katz (Chair of Innovation Management & Value in Health, University of Paris Medical School, France)
- Prof. Dr. Zimlichman (Chief Medical Officer, Sheba Medical Center, Israel)
- Prof. Dr. Marescaux (President, Research Institute against Digestive Cancer, France)
- Prof. Dr. Soler (Professor, University Hospital of Strasbourg & President, Visible Patient, France)
- Prof. Dr. Forster (Chief Innovation Officer, Ottawa Hospital, Canada)

INTERVIEW TOPICS

- Experts were interviewed on significant developments and recent trends in technological innovation which can be attributed to Smart Hospitals
- Consensus method on key questions which should appear in the questionnaire
- Discussion of notable implementations of Smart Hospital solutions

INTERVIEW INSIGHTS WERE KEY TO DEFINE SMART HOSPITAL CRITERIA

The survey generated over 13,000 votes for Smart Hospitals
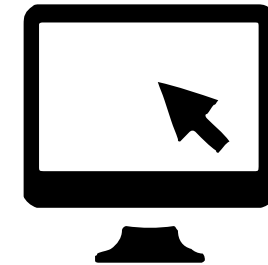
B International online survey

From February to April 2021, Statista invited thousands of hospital managers and medical professionals with knowledge about Smart Hospitals to an online survey.

International online survey among hospital managers and medical professionals. Participants were invited via e-mail.

Participants were asked to recommend hospitals which are notable Smart Hospitals and based on specific categories. International recommendations were weighted higher than national recommendations for each hospital (60:40). Recommendations for own employer/hospital were not allowed.

Analysis of national and international recommendations. Recommendations were weighted as follows:

- Notable Smart Hospital: x3
- Digital Surgery: x1.8
- Digital Imaging: x1.6
- Artificial Intelligence: x1.4
- Telehealth: x1.2
- EMR: x1
- Other: x1

Every nominated hospital was reviewed through a rigorous process

C Quality assurance via desk research

APPROACH

- All nominated hospitals have to be known for technical innovations and a leadership role in the field of Smart Hospitals
- Eligibility for the ranking was based on results from the international survey and the passing of the quality assurance process
- The project team conducted desk research and analyzed the implementation of smart technologies in eligible hospitals

REVIEW PROCESS

- Sources for technological innovations: established healthcare technology websites (e.g. healthcareglobal.com), scientific publications (e.g. PubMed) and press releases
- Survey subcategories were used as keywords for the search
- Additional keywords used (excerpt) : technological innovation, Internet of Things (IoT), Machine learning, smart buildings, preventive analytics
- Search results were validated independently via double-checks

QA PROCESS ENSURED AWARDED HOSPITALS HAVE A LEADERSHIP ROLE

As a result, the 250 hospitals with the highest total score were awarded as Best Smart Hospitals

D Final Hospital Score

Rank	Hospital	Score	City	Country
1	Mayo Clinic - Rochester	97.3	Rochester, MN	United States
2	The John Hopkins Hospital	97.1	Baltimore, MD	United States
3	Massachusetts General Hospital	97.0	Boston, MA	United States
4	Cleveland Clinic	96.8	Cleveland, OH	United States
5	The Mount Sinai Hospital	93.1	New York, NY	United States

[...]

LEADING SMART HOSPITALS WERE AWARDED

World's Best Hospitals partner network

Overview of involved parties

Newsweek

About Newsweek

Newsweek is a premier news magazine and website that has been bringing high-quality journalism to readers around the globe for over 80 years.

Newsweek provides the latest news, in-depth analysis and ideas about international issues, technology, business, culture and politics. In addition to its online and mobile presence, Newsweek publishes weekly English print editions in the United States, Europe/Middle East/Africa and Asia as well as editions in Japanese, Korean, Polish, Serbian and Spanish.

newsweek.com

statista

About Statista

Statista publishes worldwide established rankings and company listings with high profile media partners.

This research and analysis service is based on the success of statista.com. The leading data and business intelligence portal provides statistics, business relevant data, and various market and consumer studies/surveys.

statista-research.com