



# Electronic Health Record System

# What is an EHR system?

- EHR is a real-time, patient-centered documentation software intended to make health info available instantly and securely to authorized users whenever and wherever they need it.

هو برنامج يوصف المريض في الوقت الحالي والهدف الأساسي من البرنامج توفير المعلومات الصحية الخاصة بالمريض بشكل سريع و أمن في أي وقت وأي مكان.

- EHR systems are built to share data between healthcare providers and organizations, including laboratories, specialized experts, medical imaging facilities, pharmacies, schools and workplace clinics.

يتم تصميم البرنامج لمشاركة بيانات المريض الصحية بين المؤسسات بما في ذلك معامل التحاليل والأطباء المتخصصين والصيدليات وعيادات المدارس والعيادات العامة.

# EHR EX.

Handy patients enterprise edition

File Edit View Help

David (8 month and 10 day)  
John (2 years and 3 month)

Mother: Teacher  
Father: Financial advisor  
Parents: Married

Last: **Anderson** P

First: **David** Boy

Birth: 5 January 2009

Age: 8 month and 10 days Patient nb: 3

Appointments

Forms

- Meeting (Doctor)
- Full status (Doctor)
- Assistant
- Billing
- Reports
- Statistics

SOAP Sum. T  
R-V T, P, PC  
Admission Agenda

Sheets

- O: Neurologic
- O: Vascular
- O: Cardiac
- O: Respiratory
- O: Abdomen
- Exams
- Radiology
- Summary
- Patient documents
- Letter

Meetings

2 month checkup	5 Mar 09	2m,0d
1 month checkup	5 Feb 09	1m,0d
Respiration problem	22 Jan 09	17d
10 days checkup	13 Jan 09	8d
Control for return at home	9 Jan 09	4d
Birth	5 Jan 09	0d

Diagnosis

- General ☒
- My Diagnosis ☐
- Social ☐

New documents

- Abdomen palpat 15 Sep 2009
- Cardiac auscul 15 Sep 2009

To Do

Send checkup

Assist: 1 Doc: 0

Notes

Father ask many questions, add 10 minutes to consultation

Current doctor: Dr Herman

Menu 1 Menu 2 Menu 3 Search

## Digestive

Thursday, 22 Jan 2009

Digestive inspection

Normal

Digestive auscultation

Normal abdomen noises

Digestive palpation

Little pain on the right lower area

Liver

No hepatomegaly.

Rectal

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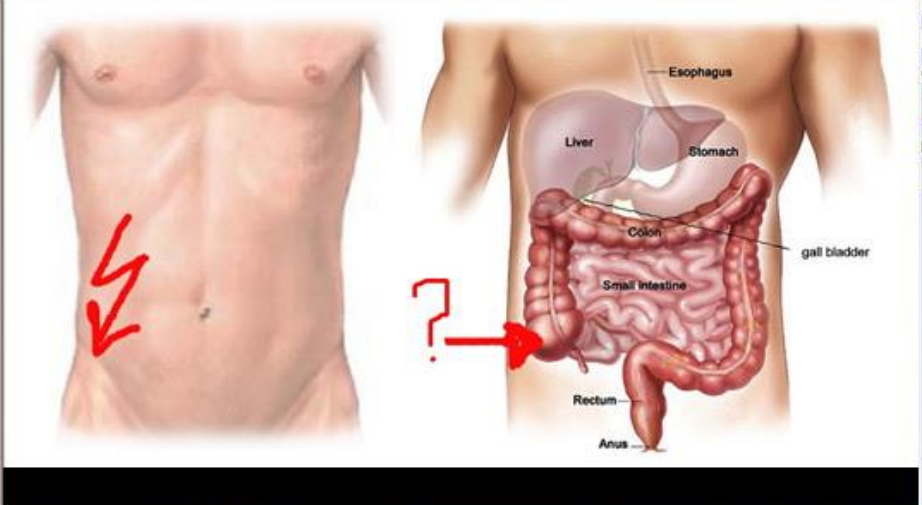
Draw ☒

Mark ☐

Color

Pen

8



Documents manager

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Source: [wikipedia.org/wiki/Electronic\\_health\\_record](http://wikipedia.org/wiki/Electronic_health_record)



# An average electronic healthcare record contains:

- Patient demographics
- Medical history
- Personal statistics
- Medications/Treatment plans
- Allergies
- Immunization dates
- Radiology images
- Lab and test results
- Vital signs
- Administrative and billing data

البيانات الشخصية للمرضى  
تاريخ طبي  
الإحصاءات الشخصية  
الأدوية / خطط العلاج  
أمراض الحساسية  
مواعيد التحصين  
صور الأشعة  
المختبر ونتائج التحاليل  
المؤشرات الحيوية  
البيانات الإدارية والفواتير



# EHRs help healthcare providers:

- Streamline their workforce تبسيط قوتها العاملة
- Improve the quality of care تحسين جودة الرعاية
- Store and update digital information تخزين وتحديث المعلومات الرقمية
- Exchange data with other care providers تبادل البيانات مع مقدمي الرعاية الآخرين
- Reduce errors تقليل الأخطاء

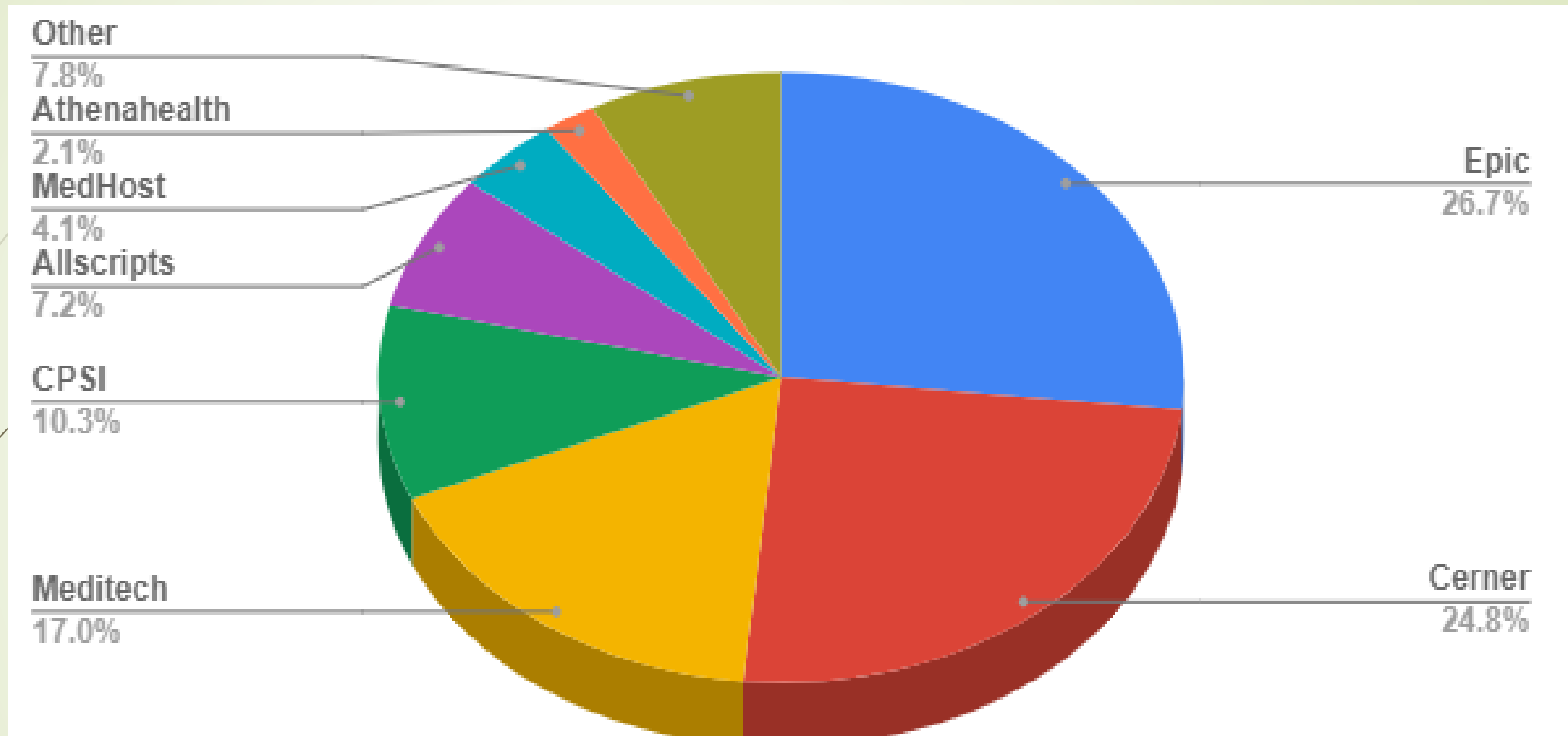


# What is the current EHR market size?

- The global EHR market size was estimated at \$28 billion in 2017 and expected to reach \$33.41 billion by 2025. It is a competitive field, with over 1.000 service providers. In general, vying companies offer high-tech solutions to private practices and hospitals.

في عام 2017 تم تقدير حجم مبيعات أنظمة EHR الطبية في السوق العالمي بمبلغ 28 مليار دولار و من المتوقع أيضا ان تصل الى 33.41 مليار دولار في عام 2025 ويتنافس اكثر من 1000 مزود خدمة والشركات على تقديم حلول في هذا المجال لدعم المستشفيات والعيادات الخاصة.

## Market Share :

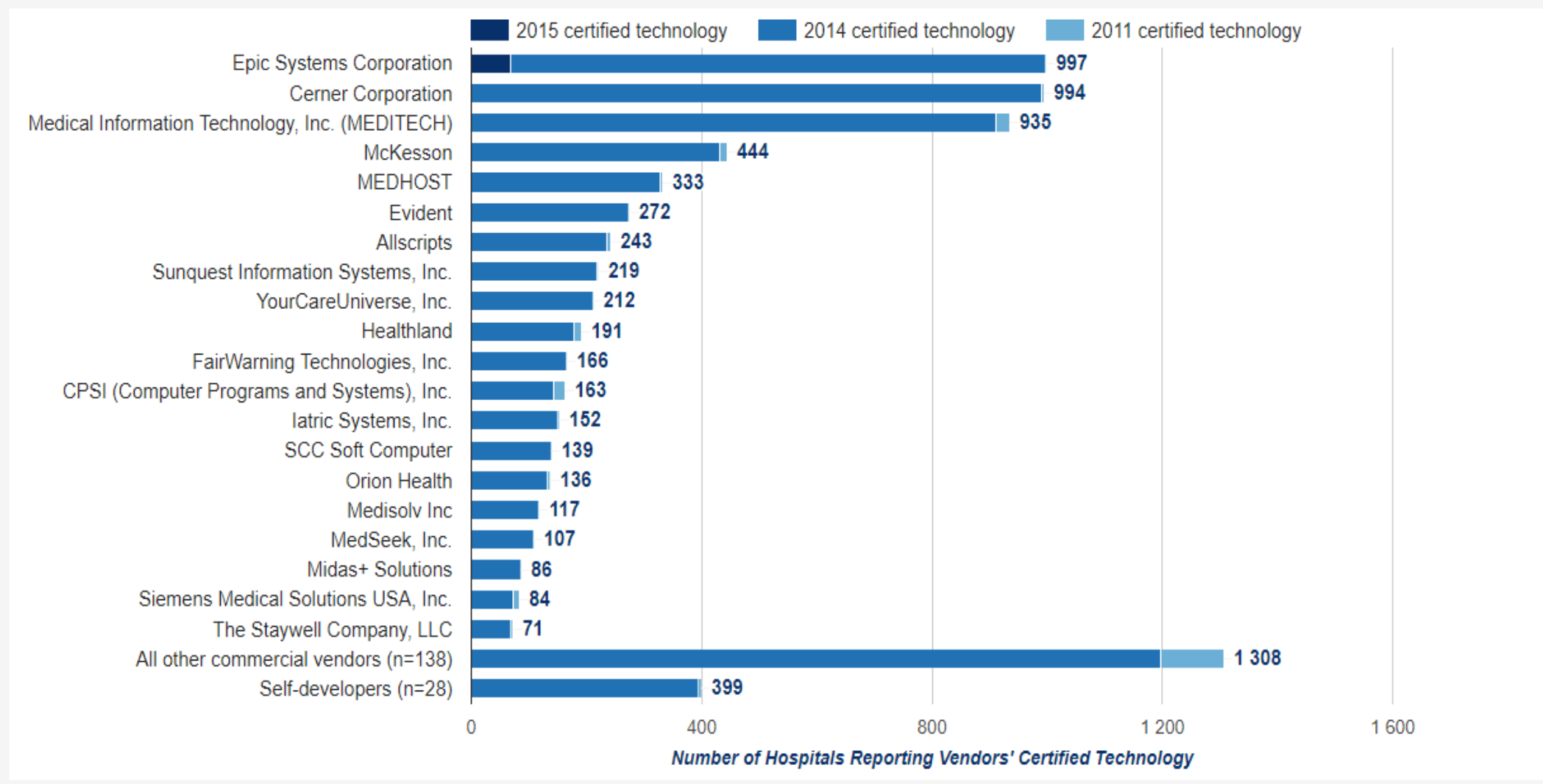


The USA holds the largest market share at around 42% in 2016.

Data source: [beckershospitalreview.com/ehrs/epic-cerner-maintain-largest-emr-market-share-among-small-hospitals.html](http://beckershospitalreview.com/ehrs/epic-cerner-maintain-largest-emr-market-share-among-small-hospitals.html)

## Certified Health IT Developers and Editions Reported by Hospitals Participating in the Medicare EHR Incentive Program

July 2017



Source: [dashboard.healthit.gov/quickstats/pages/FIG-Vendors-of-EHRs-to-Participating-Hospitals.php](http://dashboard.healthit.gov/quickstats/pages/FIG-Vendors-of-EHRs-to-Participating-Hospitals.php)



# What programming languages are used in healthcare IT systems?

- Speed of the end-product
- Amount of RAM
- Program development speed
- Powerful graphics part
- Cross-platform compatibility
- Code modification and testing speeds

سرعة البرنامج النهائي

حجم الرامات لجهاز الكمبيوتر

سرعة تطوير البرنامج

رسومات واضحة للمستخدم

التنصيب على اكثر من بيئة

سرعة تعديل واختبار الكود

- Programming Language : Python
- Framework : Django , MVC
- Modern Interfaces : Bootstrap , AJAX ,...etc.
- Big Data Technology : Hadoop ,Hive ,Spark ,Sqoop

# What are the most common EHR Requirements?

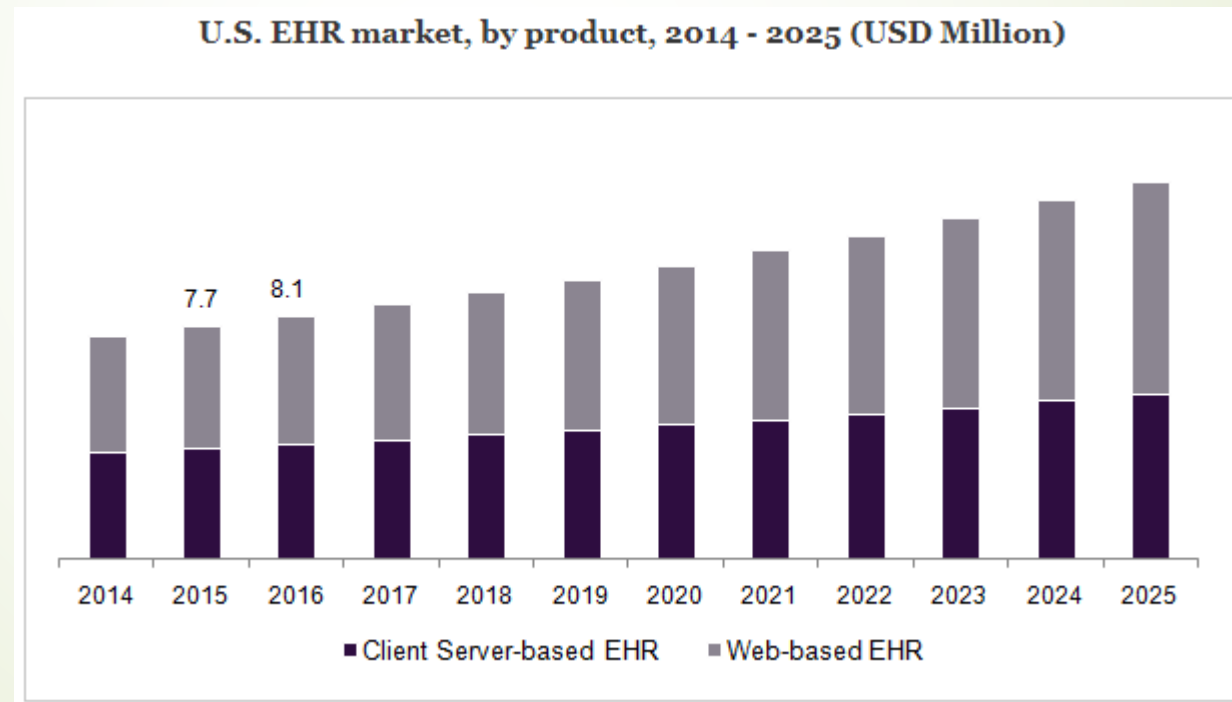
- “Computers need to do work for physicians rather than making physicians do work for the computer. Technologies should make it faster and easier for the physician”.

Jonathan Handler, MD, Vice President of Digital Innovation at Baxter Healthcare Corporation.

- According to Dr. Handler, EHR systems have to be supplied with
- single sign-on علامة دخول واحدة
- Biometrics المؤشرات الحيوية (ضغط الدم/نبضات القلب/نسبة الأكسجين/...)
- Speech Recognition التعرف على الكلام
- Natural Language Understanding فهم اللغة الطبيعية
- Computer-Assisted Physician Documentation مساعدة الطبيب بالوثائق الحديثة
- Advanced Data Visualizations طرق متقدمة لعرض البيانات الضخمة
- Predictive Analytics,...etc. التنبؤ بالتحليلات والأمراض الجديدة...

# What EHR hosting solution to choose?

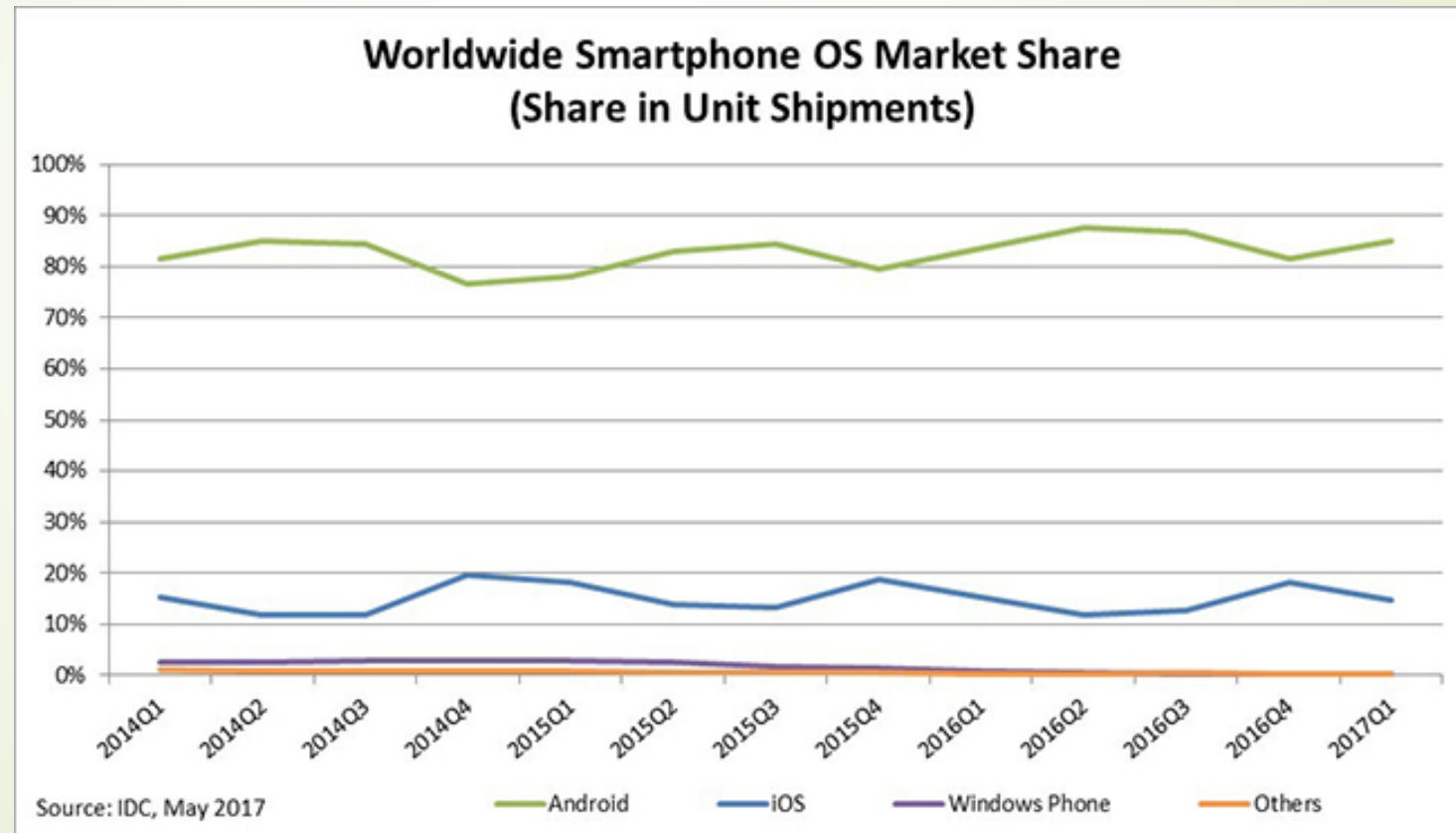
- The subscription-based **cloud solution** is the fastest growing product segment as they are more convenient for clinics, pharmacies, and small-scale laboratories.



Source: [grandviewresearch.com/industry-analysis/electronic-health-records-ehr-market](https://www.grandviewresearch.com/industry-analysis/electronic-health-records-ehr-market)

# What mobile operating system to pick?

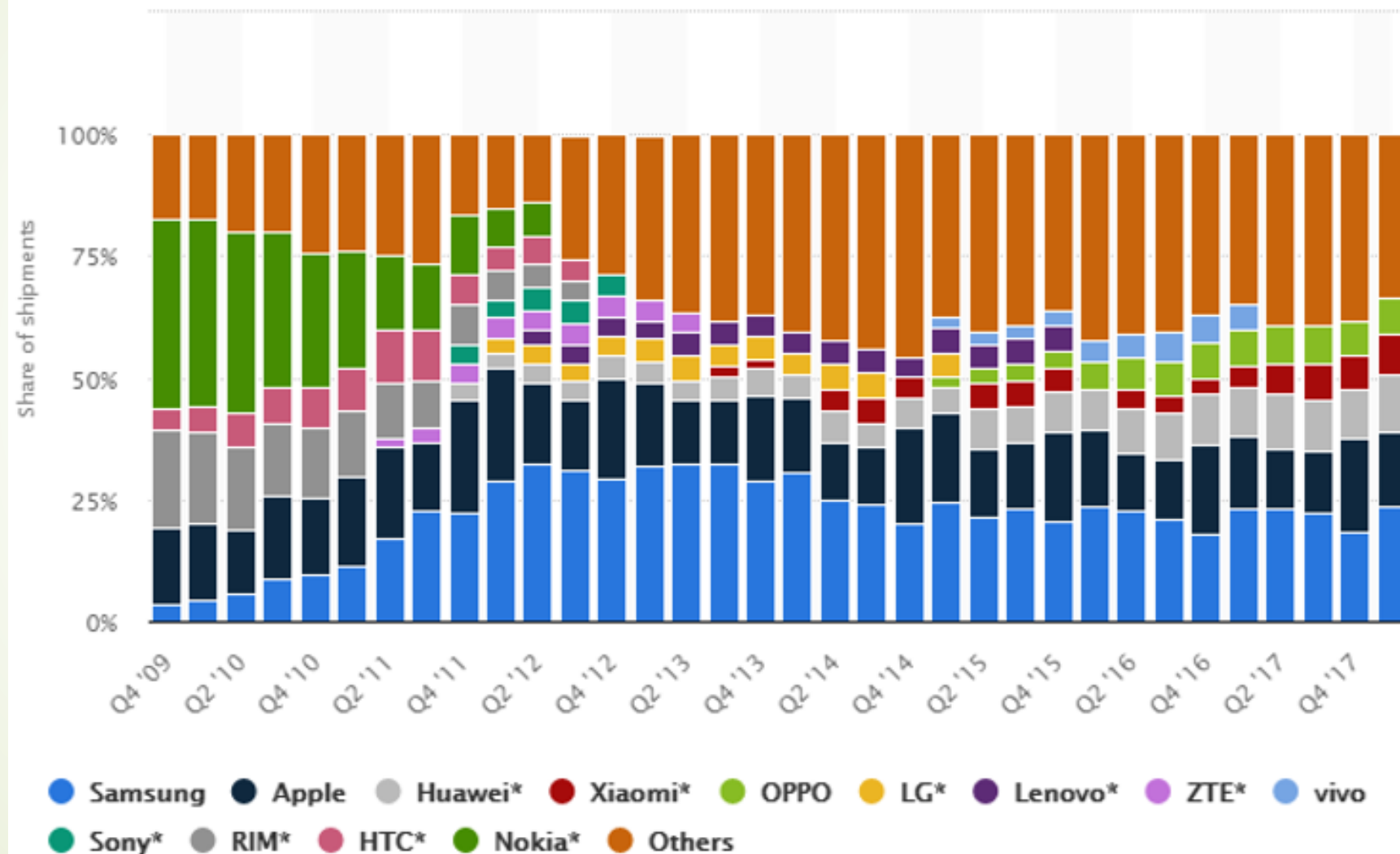
- Android is now the world's most commonly used mobile platform and preferred by various smartphones and mobile tablet manufacturers. The system holds about 85 percent of global market share to iOS's 14,7 percent.



Source: [idc.com/promo/smartphone-market-share/os](http://idc.com/promo/smartphone-market-share/os)

Cont.

## Global market share held by leading smartphone vendors from 4th quarter 2009 to 1st quarter 2018



Source: [statista.com/statistics/271496/global-market-share-held-by-smartphone-vendors-since-4th-quarter-2009/](https://www.statista.com/statistics/271496/global-market-share-held-by-smartphone-vendors-since-4th-quarter-2009/)



# Thank You

Thank You