Emerging mHealth: paths for growth

7 June 2012

pwc

Contents

1 Executive summary

2 mHealth maturity scorecard

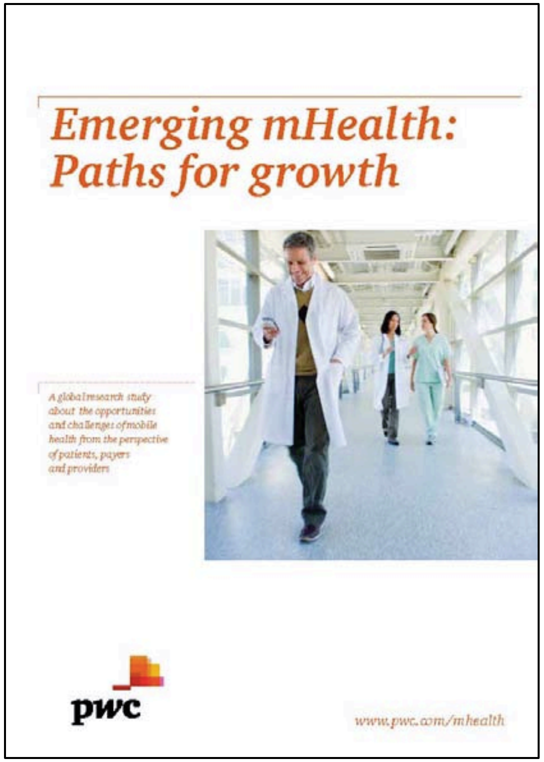
3 Key findings

4 Country breakdown of key data

5 Key global contacts

1. Executive Summary

Executive summary



Goal of the report

- Report assesses the market opportunities and challenges for mHealth from the perspective of patients, payers, and providers
- EIU report, commissioned by PwC, with analysis from PwC

Key findings

- Expectations are high for mHealth from patients, providers and payers
- Significant differences in adoption among emerging and developed nations
- Consumers are ready to adopt mobile health faster than the health industry is ready to adapt
- Solutions, not technology, are the key to success

About the research

Report surveys covered patients, physicians and payers

1 A **patient survey** with over 1,000 respondents— with a broad distribution of economic backgrounds, ages, levels of education and states of health

2 A **physicians survey** with 433 physicians — public and private sector, urban vs. rural, wide range of years in experience

3 A **payer survey** with 345 respondents — roughly evenly divided between public and private sector and 55% are C-suite or above

4 20 **in-depth interviews** with key experts

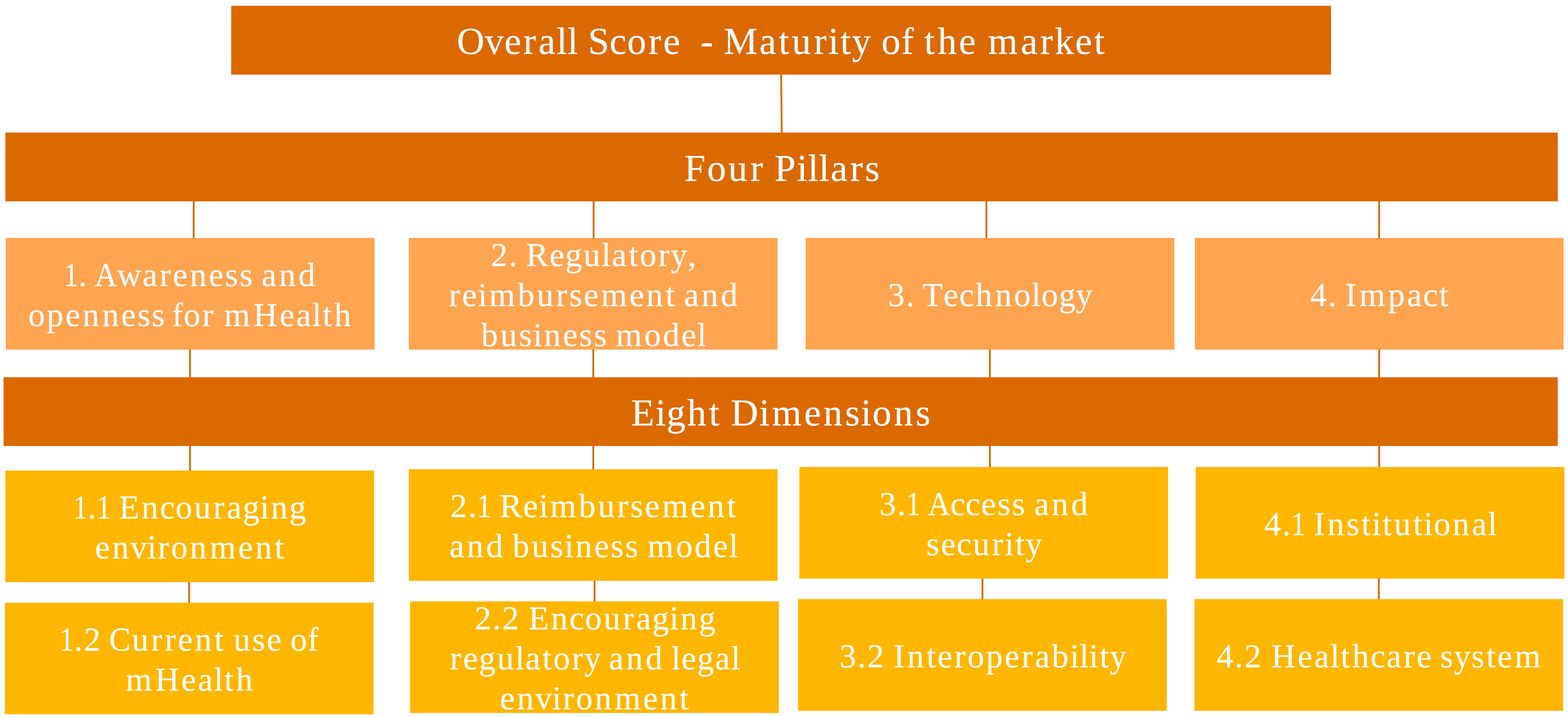
The survey included 10 countries:

Brazil | China | Denmark | Germany | India | South Africa | Spain | Turkey | UK | US

2. mHealth readiness scorecard

mHealth scorecard methodology

- Provides an overview of the countries surveyed and the maturity of their mHealth market through four key pillars. Each pillar is further divided into eight dimensions to support the findings
- Survey questions are grouped into the eight dimensions
- Each country receives a score per pillar and dimension, and an overall score



Source: PwC analysis based on EIU research, 2012

The scorecard is based on the survey of patients, physicians and patients and scores from 10 (mature) to 1 (immature)

1 Scorecard framework

Apply scorecard framework about the mHealth market based on eight dimensions

2 Data analysis

Collect and analyse data from
- doctor/payer survey
- patient survey
- expert interviews

3 Normalisation of data

Normalise data on a scale of 1 to 10, with 10 being the most mature

4 Dimension score calculation

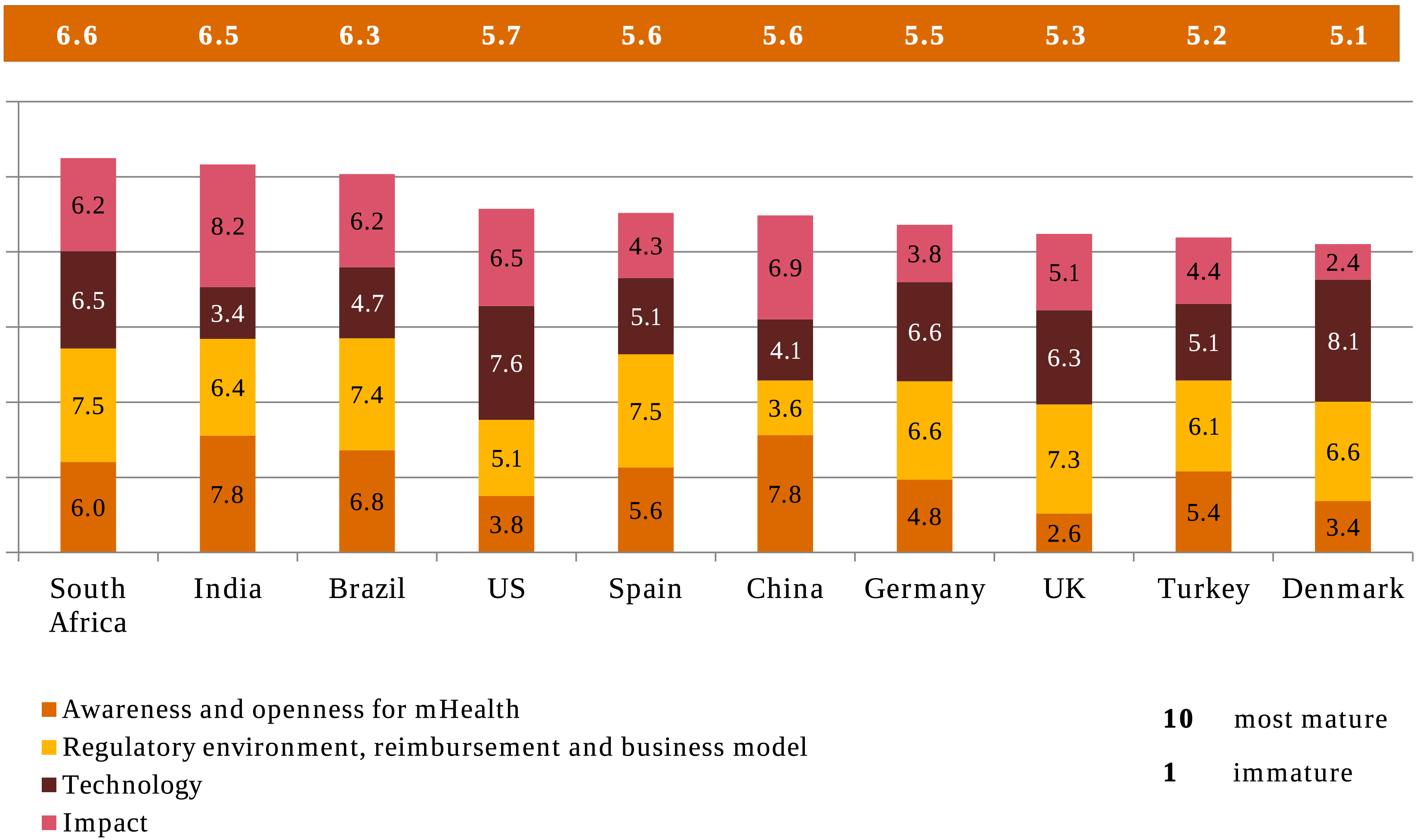
Calculate the scores for each of the eight dimensions

5 Pillar and overall score calculation

Calculate the score for the four pillars and the overall score

Emerging markets lead the way in mHealth, followed by the US as the most mature market

Overall score



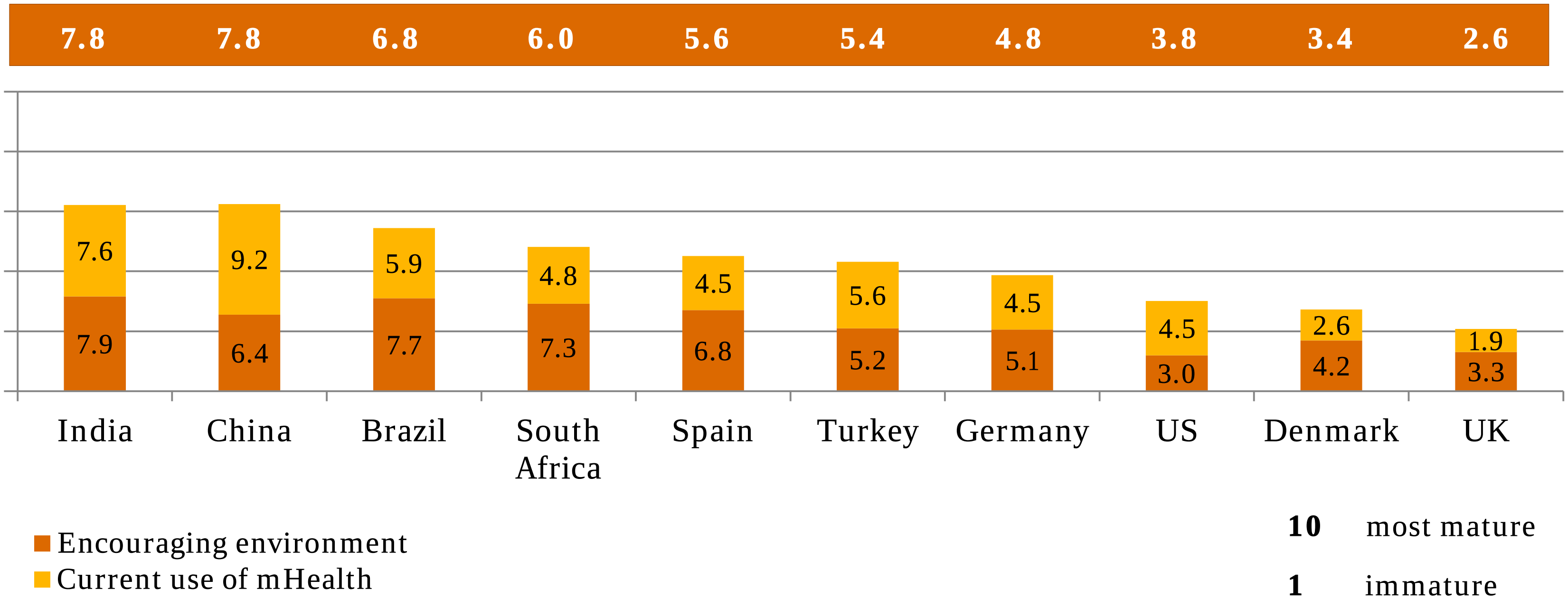
10 most mature

1 immature

Source: PwC analysis based on EIU research, 2012

First pillar: Awareness and openness for mHealth

Detailed scores

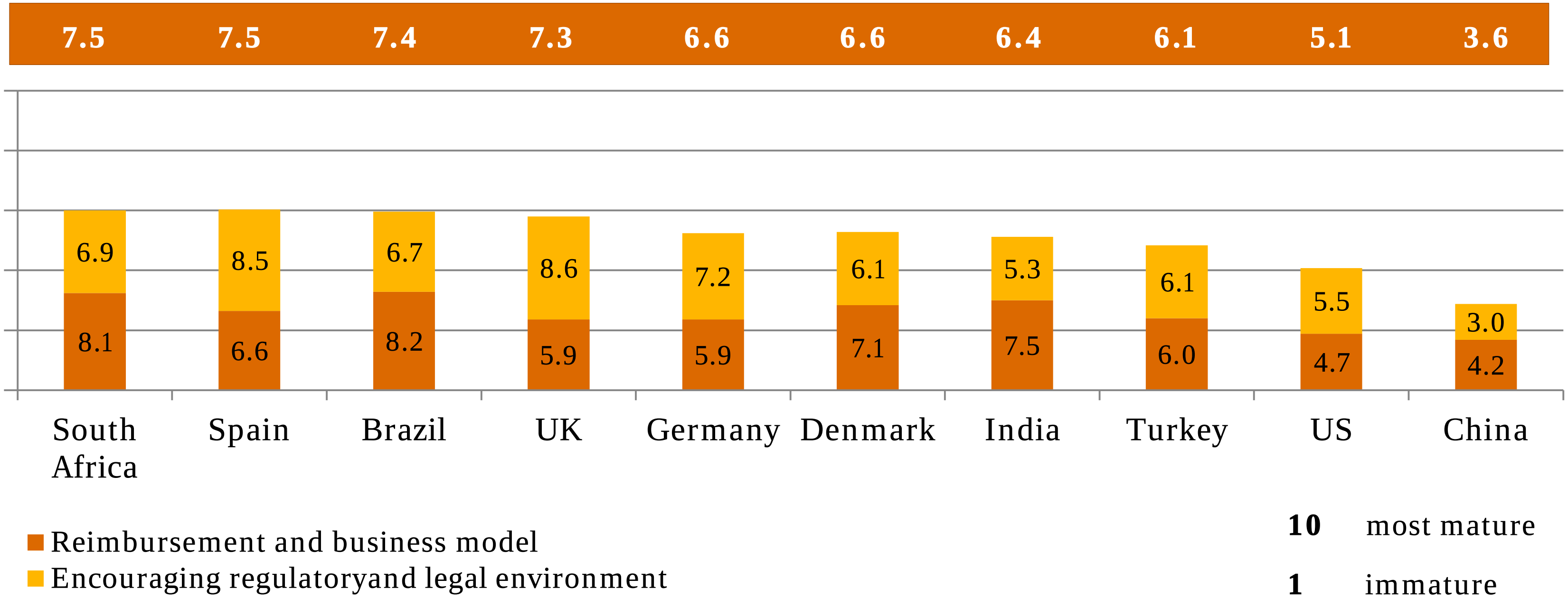


- The emerging markets score high in doctors encouraging patients to use mHealth as well as patients using mHealth solutions
- The most established mHealth market today, the US, scores very low in awareness and openness of mHealth. The same could be said of the UK. Reasons may be due to physicians who are already using mHealth are more aware of its possible drawbacks

Source: PwC analysis based on EIU research, 2012

Second pillar: Regulatory environment, reimbursement and business model

Detailed scores

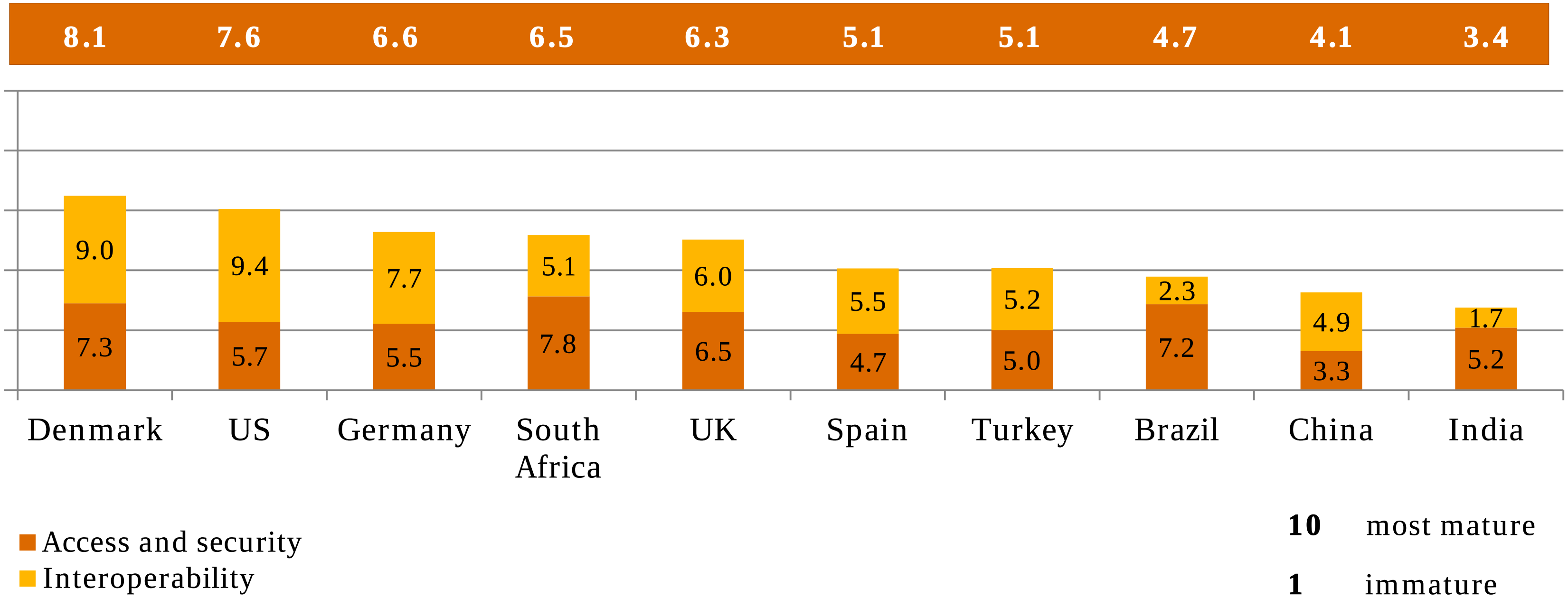


- Developed and emerging countries have no significant differences on reimbursement, and the regulatory and legal environment
- According to survey respondents, too few proven business models and an unsupportive regulatory environment are key barriers to mHealth
- China's score is the lowest for both dimensions in this pillar, with 83% indicating there are too few proven business models (survey average is 64%)

Source: PwC analysis based on EIU research, 2012

Third pillar: Technology

Detailed scores



10 most mature

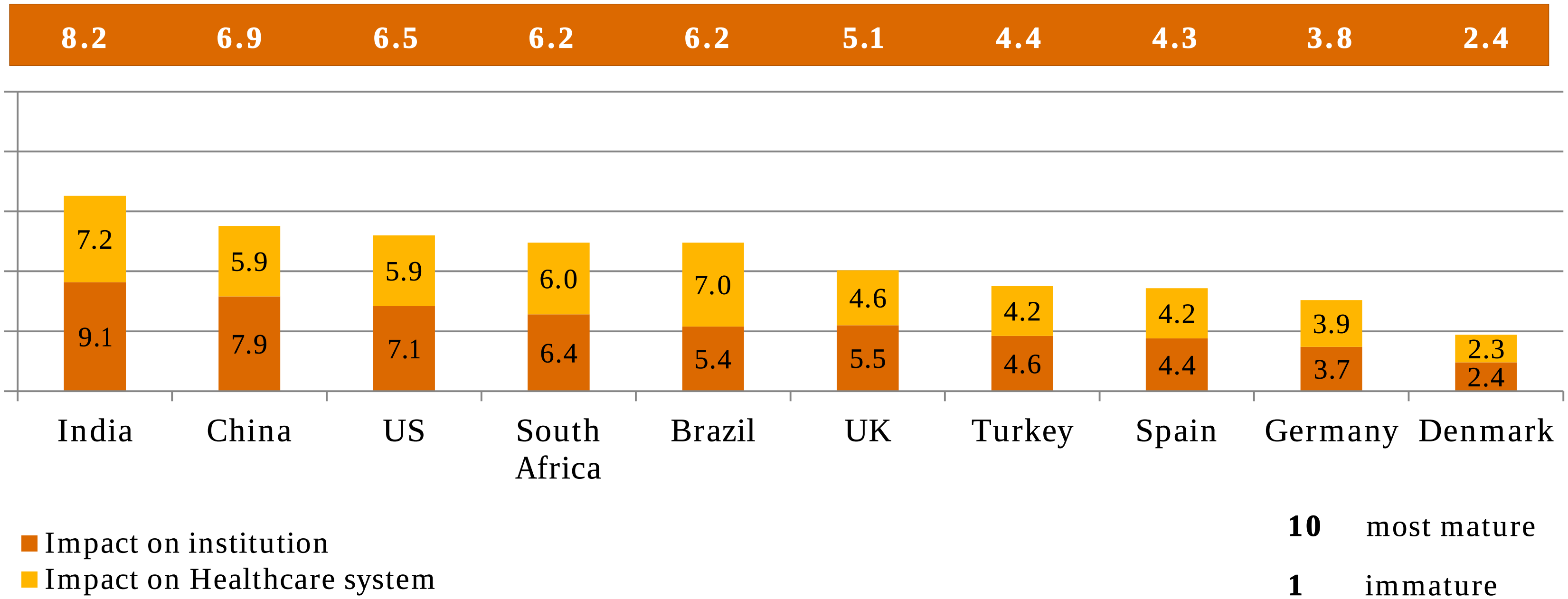
1 immature

- In technology, the developed markets e.g., US, Denmark or Germany are ahead
- The higher smartphone penetration, a much higher emphasis on interoperability with existing systems, as well as a more advanced access and security features lead to a perception of high readiness for mHealth from a technological point of view

Source: PwC analysis based on EIU research, 2012

Fourth pillar: Impact

Detailed scores



- The emerging markets and the US score high in this pillar
- The impact on institutions is measured by the expected impact on medical care, on the relationships with patients and on internal operations. For example, 92% of physicians in India expected a noticeable effect of mHealth in 3 years. In Denmark, only 80% believe this is the case
- The impact on healthcare can be illustrated by the following figure: 52% of physicians in India believe the widespread adoption of mHealth is inevitable, vs. 34% in Denmark

Source: PwC analysis based on EIU research, 2012

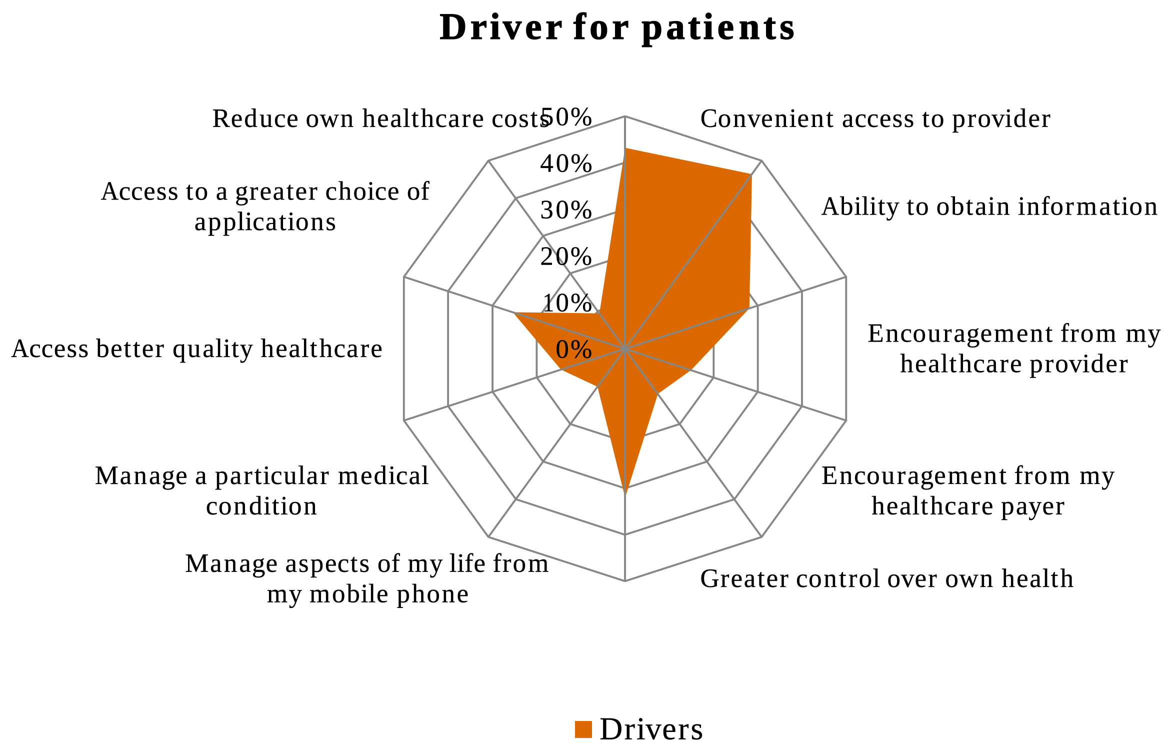
3. Top ten findings of the survey

Finding #1 – mHealth could enable a disruptive move from doctor-directed care towards a more personalised, consumer- oriented model

46%

of surveyed patients expect more convenient access to healthcare providers through mHealth

Patients believe that mHealth offers them convenient access to providers as well as the possibility to reduce their own healthcare costs



Source: PwC analysis based on EIU research, 2012

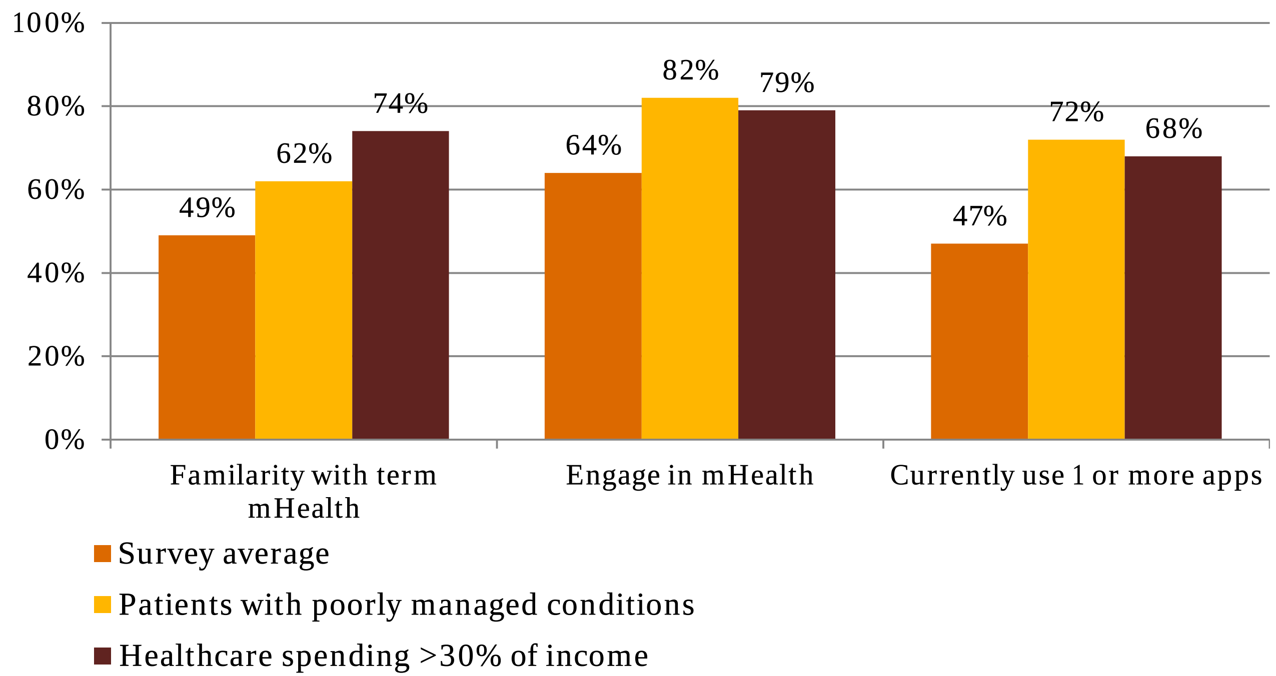
Finding #2 – Patients with health issues are most likely to use mHealth products and services

82%

of patients with poorly managed conditions engage in some sort of mHealth (vs. 64% survey average)

Patients with chronic diseases like diabetes are better informed about mHealth, more likely to be using mHealth services and more likely to pay for them

mHealth adoption for patients with chronic diseases vs. survey average



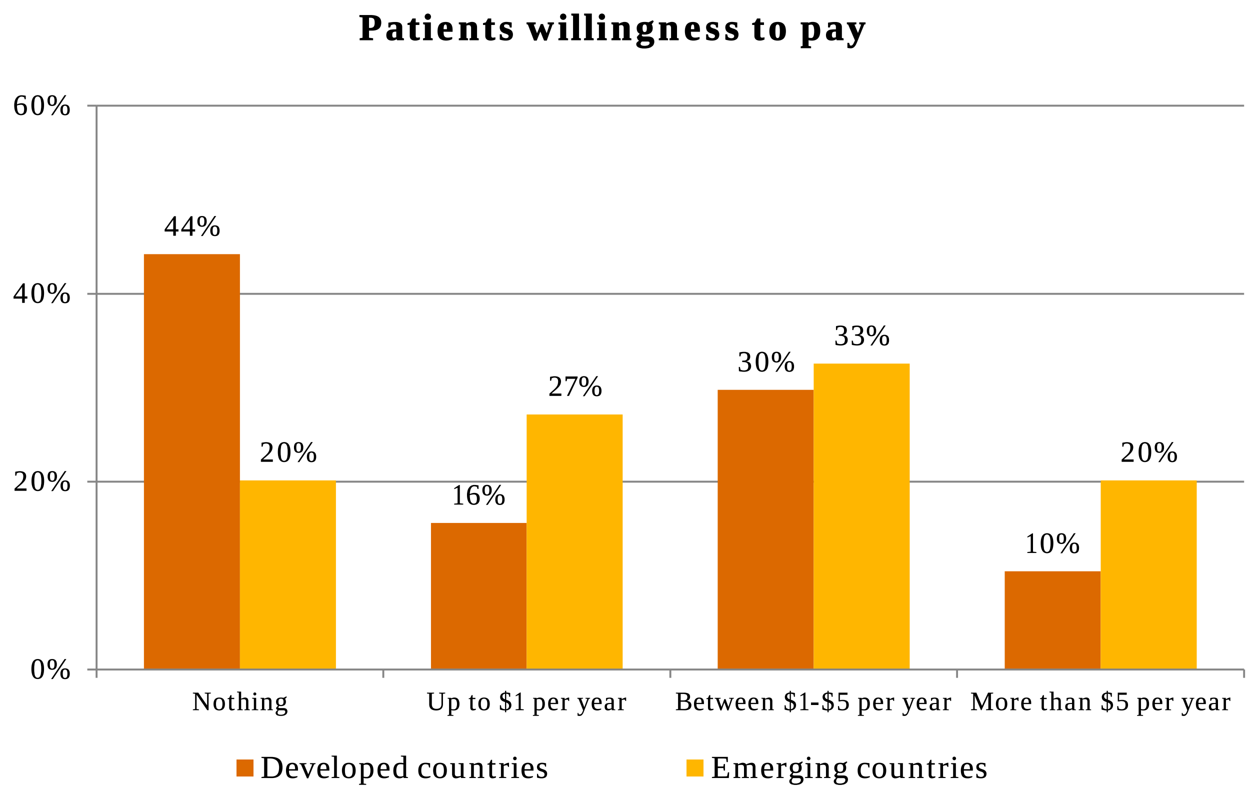
Source: PwC analysis based on EIU research, 2012

Finding #3 – Patients are highly price sensitive, mainly because they think healthcare payers should bear the costs

20%

of patients in emerging countries would pay more than $5 annually for an mHealth service, vs. 10% in developed countries

Patients in emerging markets are willing to pay more than those in developed ones – likely reflecting the higher proportion of all healthcare costs they have to pay themselves



Source: PwC analysis based on EIU research, 2012

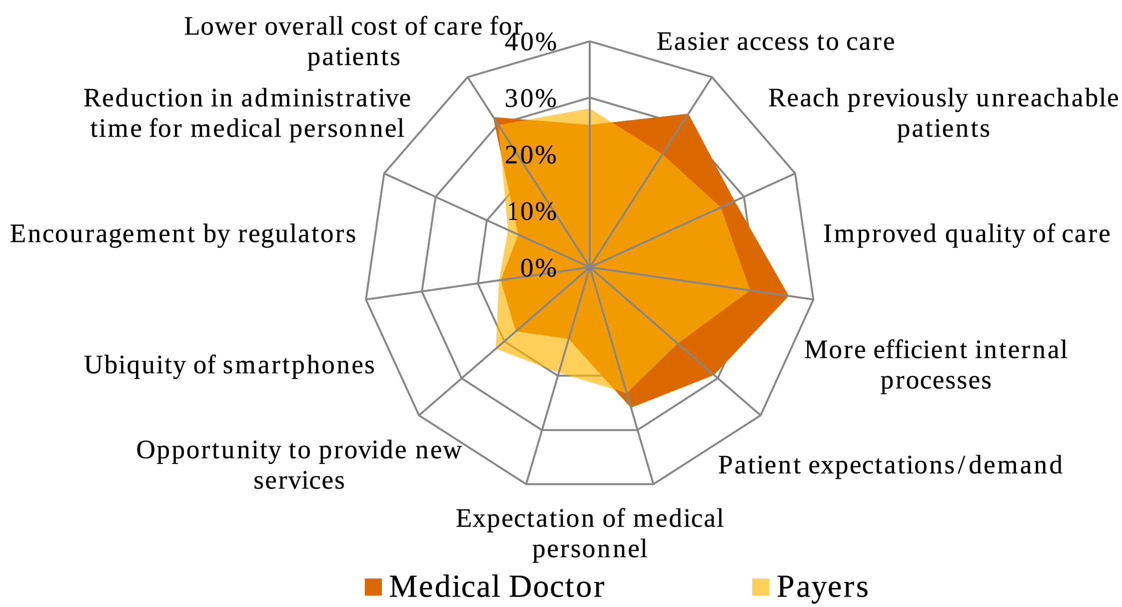
Finding #4 – Payers and – to a lower extent physicians – see the potential for improving quality of care and reduced costs…

40%

of payers encourage patients to monitor their condition through mHealth (vs. 25% of physicians)

Payers seem more optimistic about the potential for mHealth in promoting better health through greater patient involvement in care and reduced healthcare costs

Drivers for physicians and Payers



Source: PwC analysis based on EIU research, 2012

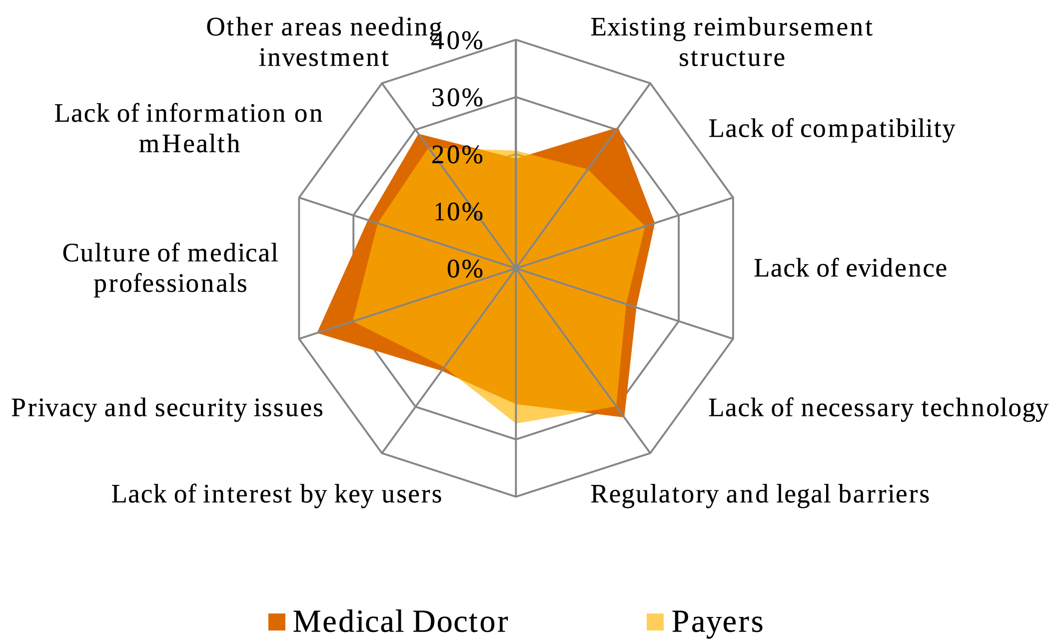
Finding #4 – … but physicians are concerned that mHealth will make patients too independent

44%

of physicians are worried that mHealth will make patients too independent

Patients are aware of this reluctance among physicians. 60% of active users of mHealth say that patients and technology companies are more interested in mHealth than physicians

Barriers for physicians and payers



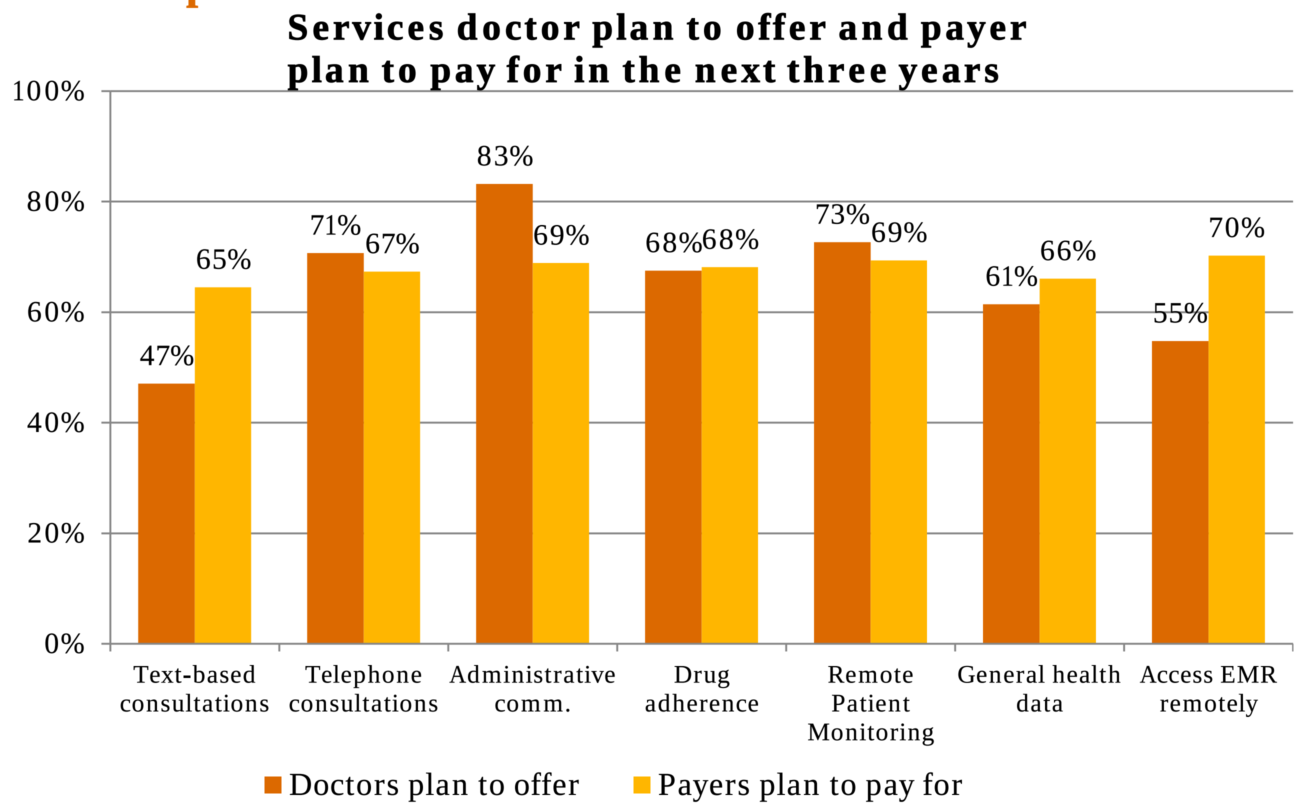
Source: PwC analysis based on EIU research, 2012

Finding #5 – Payers are more likely to cover mHealth services than physicians are to provide them

70%

of payers plan to pay for mobile access to EMR in the next three years, but only 55% of physicians plan to offer this service

Physicians frequently cite existing payment structures as a barrier to their greater deployment of mHealth yet reimbursement seems to be less an issue among payers than expected



Source: PwC analysis based on EIU research, 2012

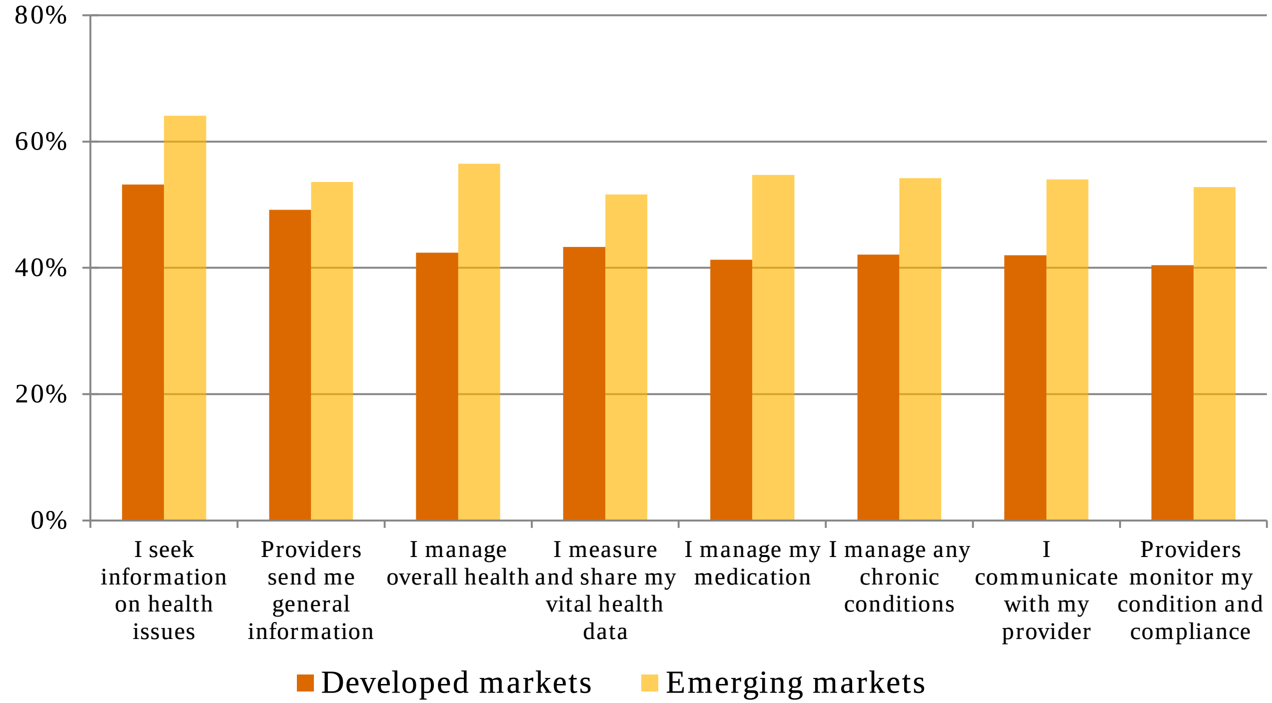
Finding #6 – Emerging markets will lead the way in mHealth

61%

of surveyed patients in emerging markets are aware of term "mobile health" (vs. 37% in developed markets)

mHealth is less disruptive to healthcare in emerging markets because for a majority, it is not a substitution to care but rather the only access

High patient expectations in emerging countries: mHealth will change how…



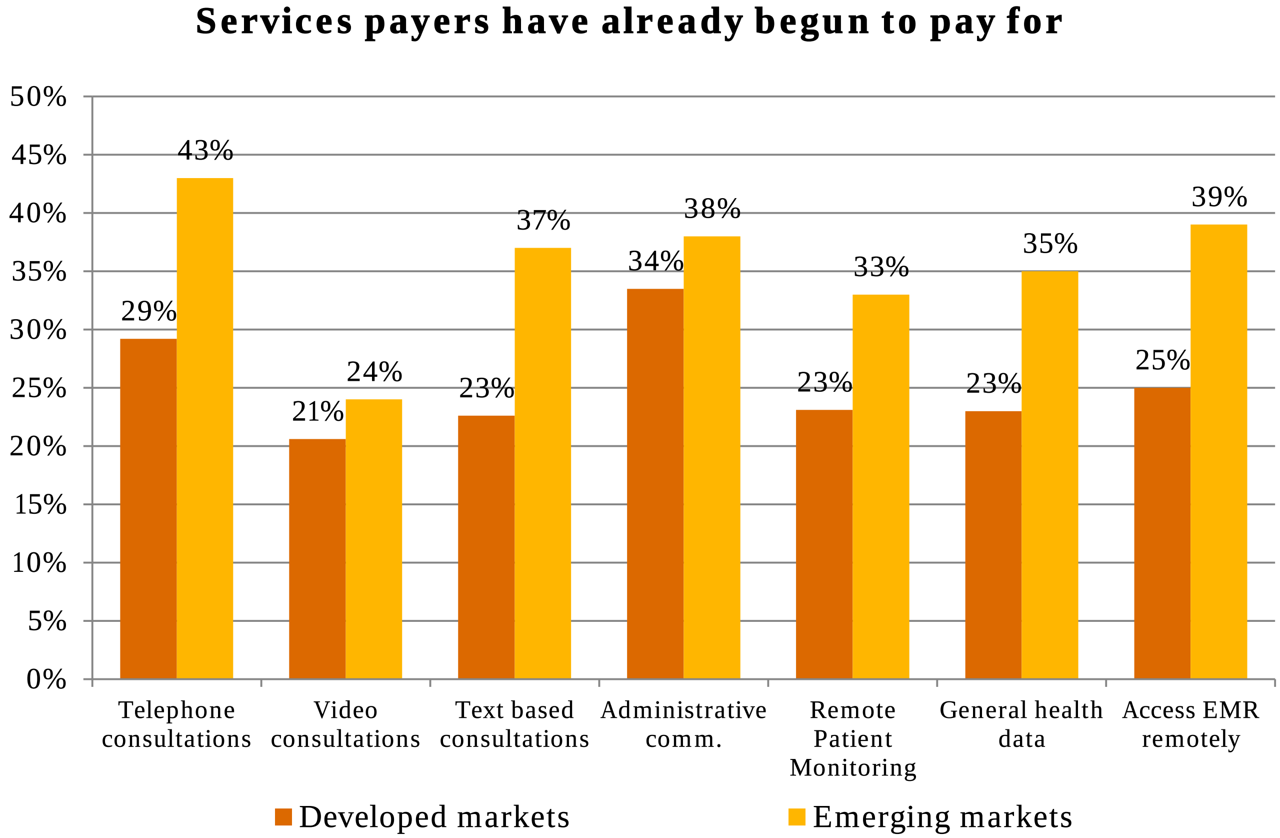
Source: PwC analysis based on EIU research, 2012

Finding #6 – Emerging markets will lead the way in mHealth

43%

of payers in emerging markets pay or plan to pay for telephone consultations (vs. 29% in developed markets)

More mHealth services are covered by payers in emerging markets than in developed countries



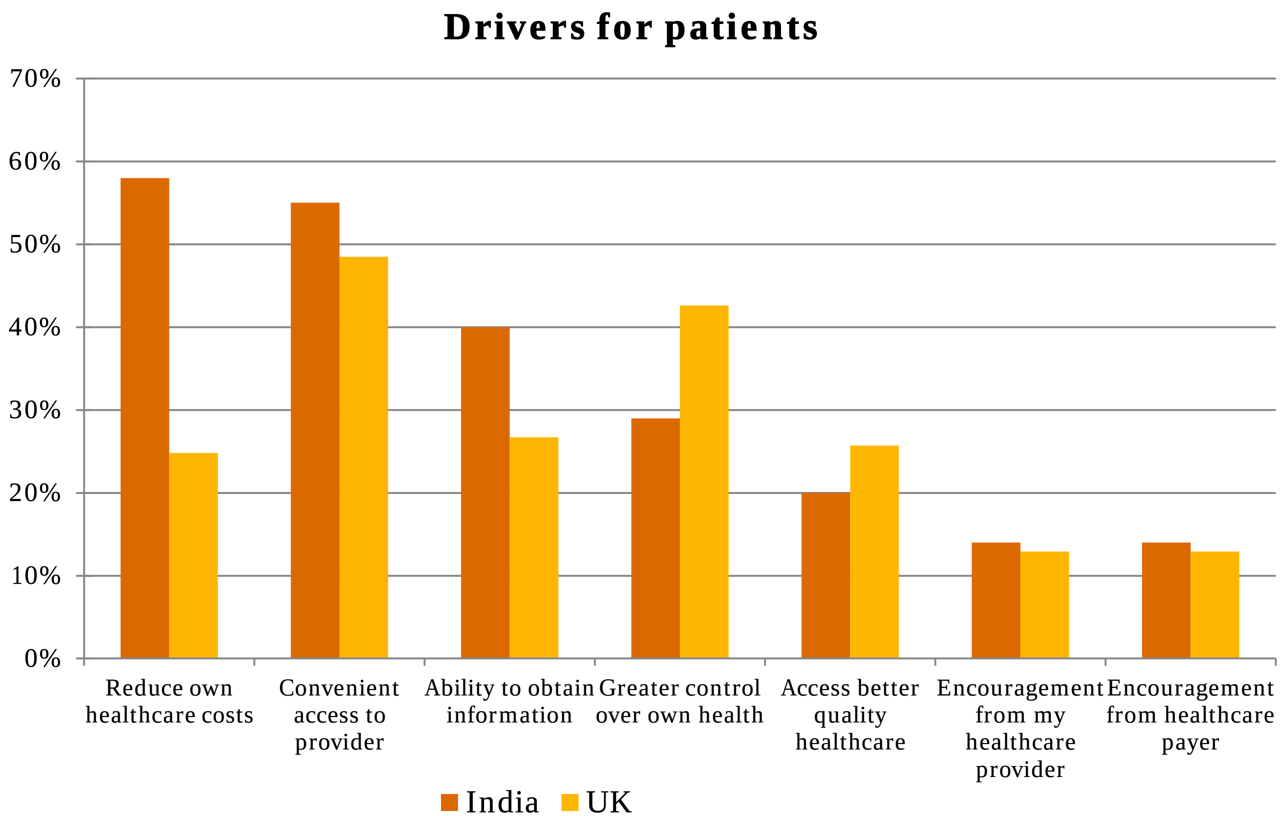
Source: PwC analysis based on EIU research, 2012

Finding #7 – A tale of two countries – India and the UK

0.6

physicians per 1,000 inhabitants are practicing in India (vs. 2.2 per 1,000 in the UK)

For India, mHealth address pressing healthcare needs; for the UK, it is an added luxury



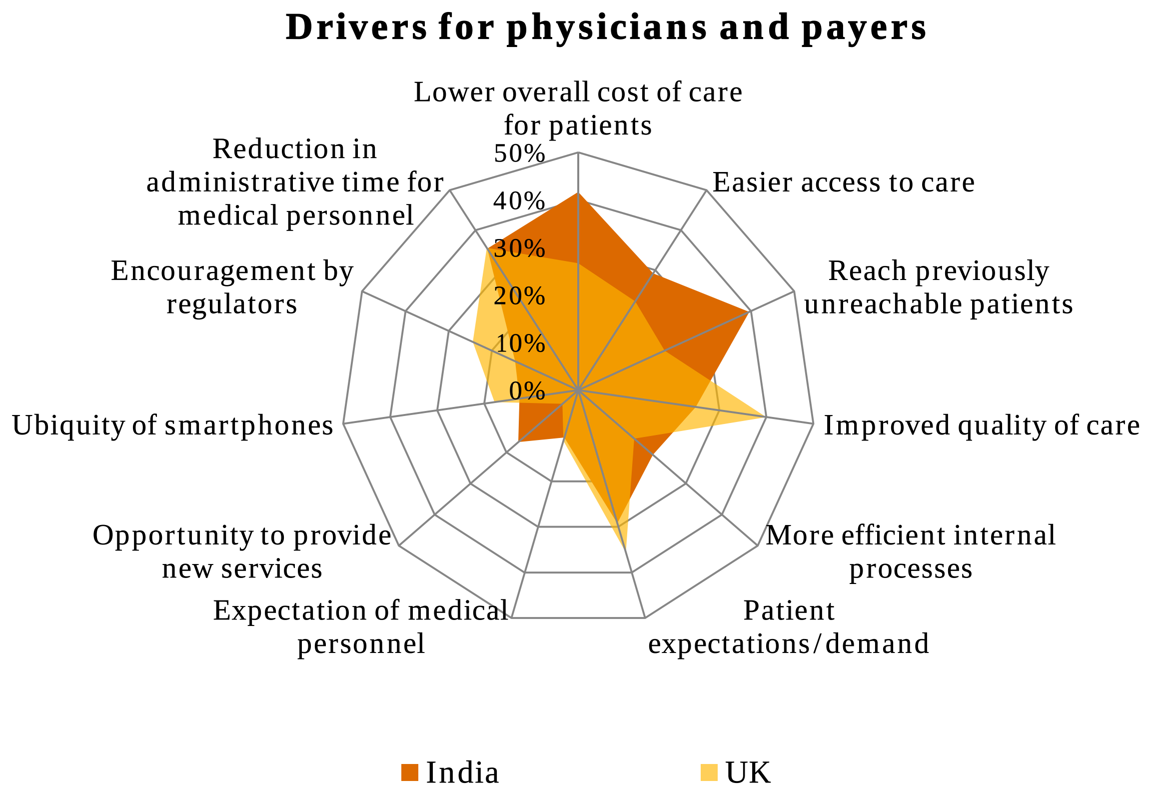
Source: PwC analysis based on EIU research, 2012

Finding #7 – A tale of two countries – India and the UK

88%

of India respondents do engage in mHealth activity (vs. just 52% of UK respondents)

Lower cost for patients is the leading driver of mHealth in India, whereas the reduction of administrative time is a leading concern of physicians in the UK with the NHS system.



Source: PwC analysis based on EIU research, 2012

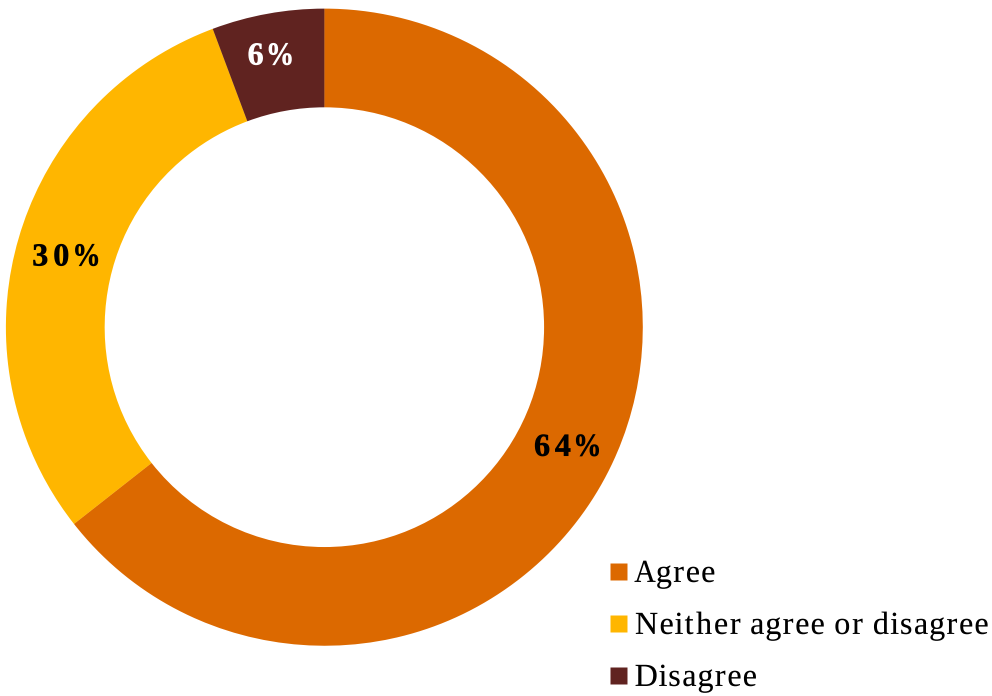
Finding #8 – Focus on solutions, not technology

64%

of physicians and payers say mHealth has exciting possibilities but too few proven business models

To create real value and identify business models, companies must focus on solutions that address the needs of stakeholders (payer, provider, patients) directly

Exciting possibilities, but too few business models



Source: PwC analysis based on EIU research, 2012

Finding #8 – Focus on solutions, not technology

48%

of surveyed patients who have used an mHealth app discontinued it after the first six months

Immense high dropout rates illustrates the need for engaging, integrated, interoperable, and intelligent apps

Example for PwC Six Success principles: WellDoc Diabetes manager

Integrated
- Integrated into existing healthcare plans, personal lifestyles, and clinical process
- Utilizes multiple technologies

Interoperability
- Incorporated into Allscripts electronic health record system
- Enables data from app to be accessed by physicians through EHR

Intelligent
- App provides real time alerts and intelligent guidance for users based on data inputted
- Doctors receive clear, actionable data that they can use as a basis for recommendations

Socialized
- Improves treatment and medication while providing personal coaching, direct physician support, and caregiver linkage

Outcome Oriented
- Demonstrated clinical success in trials
- Demonstrated economic success in the reduction of health care costs

Engaging
- Patients can configure settings, messaging, tonality, and interaction modes

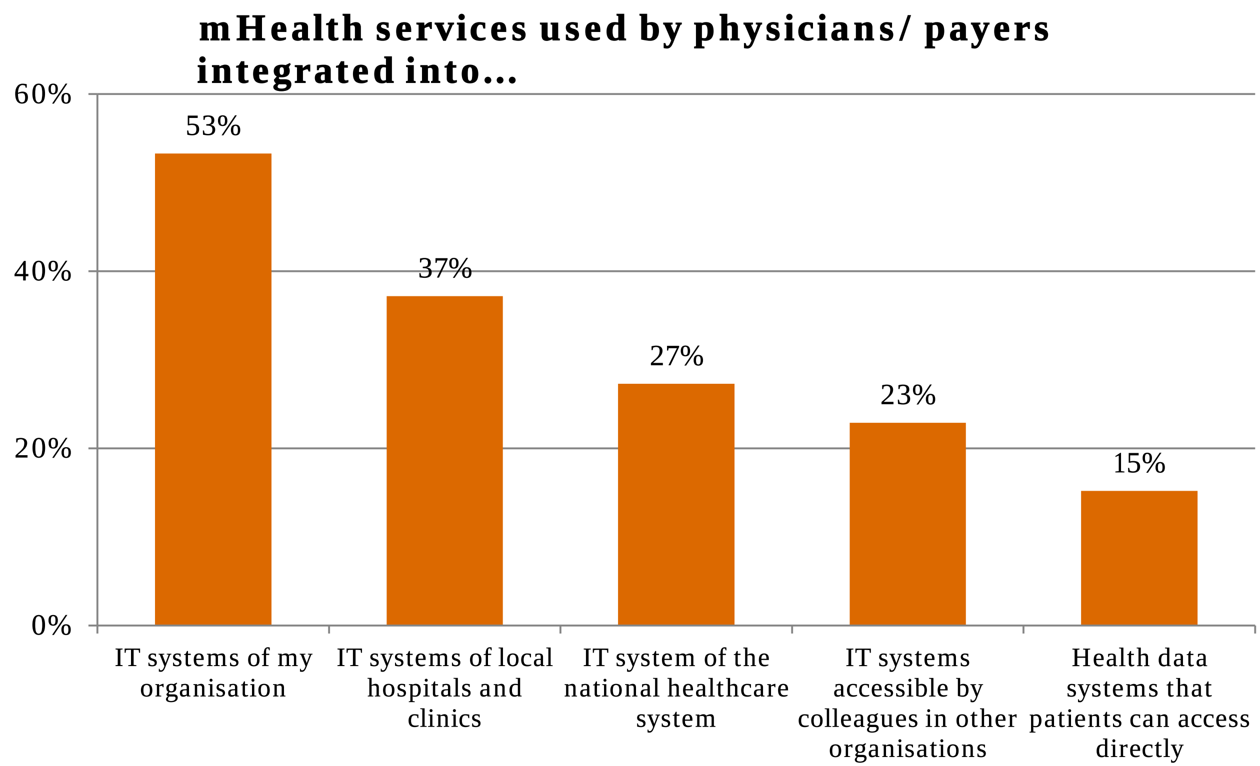
Source: PwC analysis based on EIU research, 2012

Finding #9 – Technology still presents challenges for mHealth adopters

47%

of surveyed physicians say that mHealth applications they use will not work with their organisation's IT

Lack of interoperability, standards and integration into existing IT-systems impedes uptake of the fragmented mHealth market



Source: PwC analysis based on EIU research, 2012

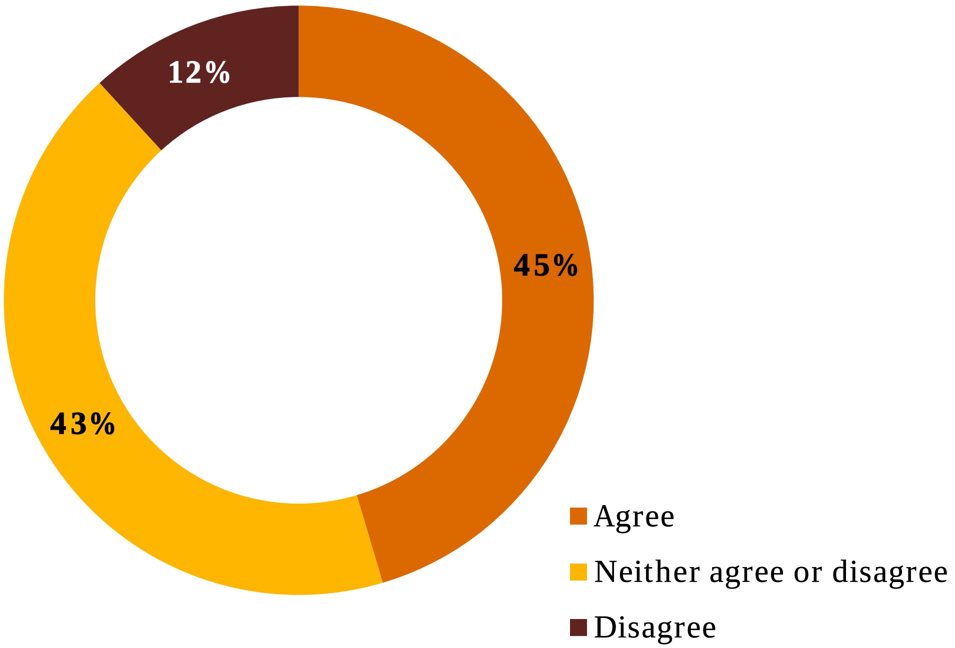
Finding #10 – Regulators could encourage advances in mHealth, but the survey shows otherwise

45%

of physicians and payers think mHealth advances are held up by regulation

Surveyed physicians and payers see little encouragement for mHealth by regulators, due to regulatory and legal barriers

mHealth advances are being held up by regulation created for older technologies that does not translate well to newer ones



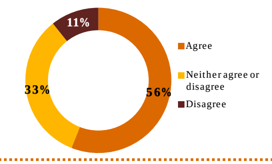
Source: PwC analysis based on EIU research, 2012

4. Country breakdown

Overview of key data

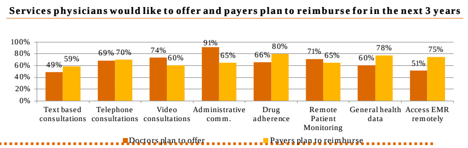
1

Expectation of physicians and healthcare payers about the widespread adoption of mHealth



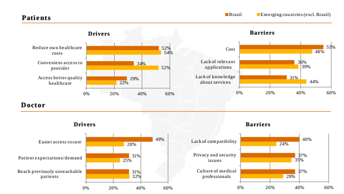
2

Services physicians would like to offer and payers plan to reimburse for in the next 3 years



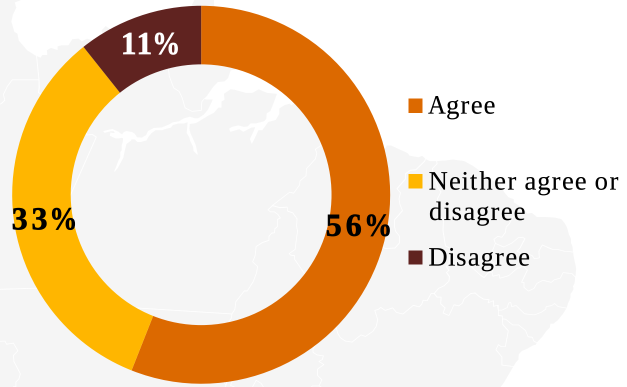
3

Top 3 drivers and barriers for patients and physicians (including average of the peer group)

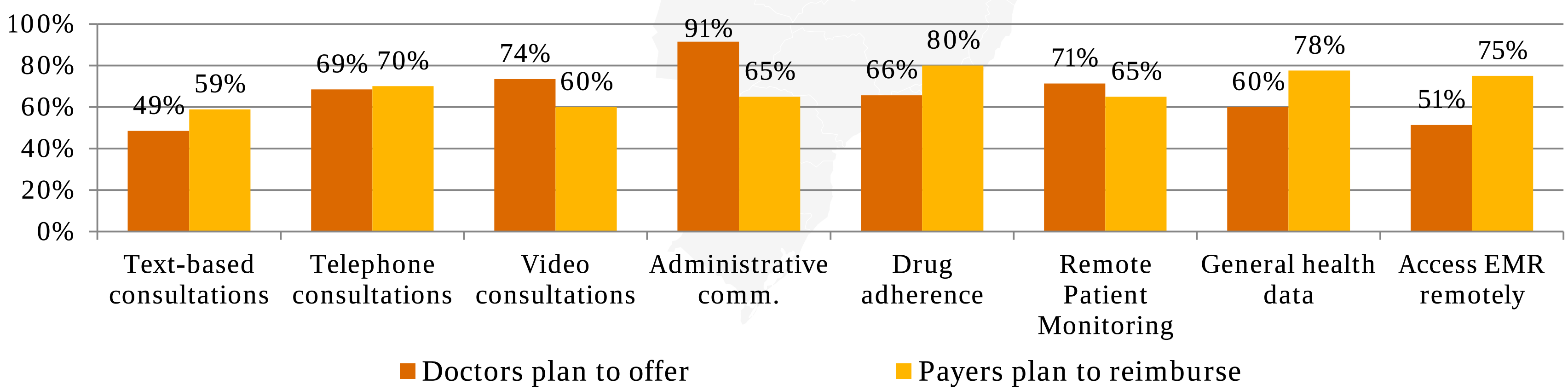


Brazil - Potential and services

Widespread adoption of mHealth services in my country is inevitable in the near future



Services physicians would like to offer and payers plan to reimburse for in the next 3 years

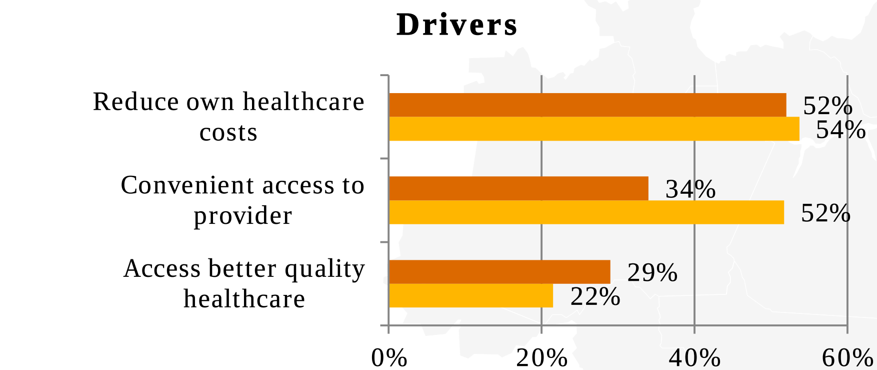


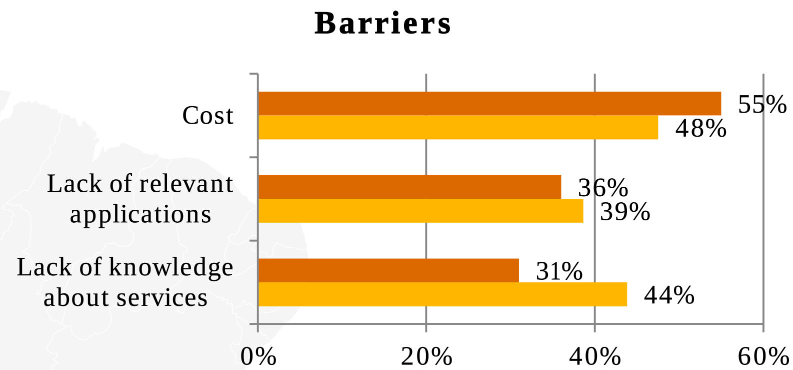
Source: PwC analysis based on EIU research, 2012

Brazil - Top 3 drivers and barriers for patients and physicians

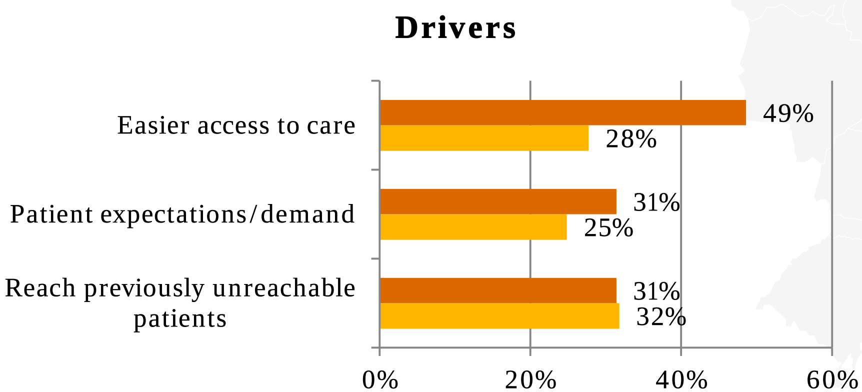
■ Brazil ■ Emerging countries (excl. Brazil)

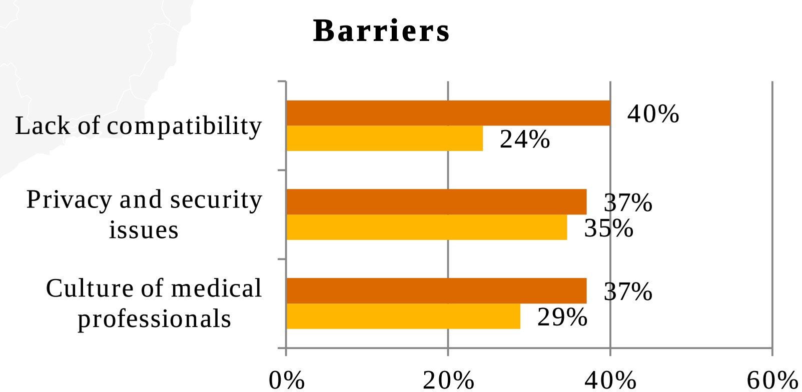
Patients





Physicians

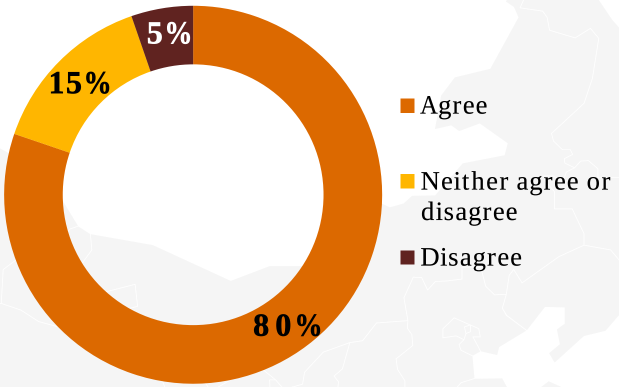




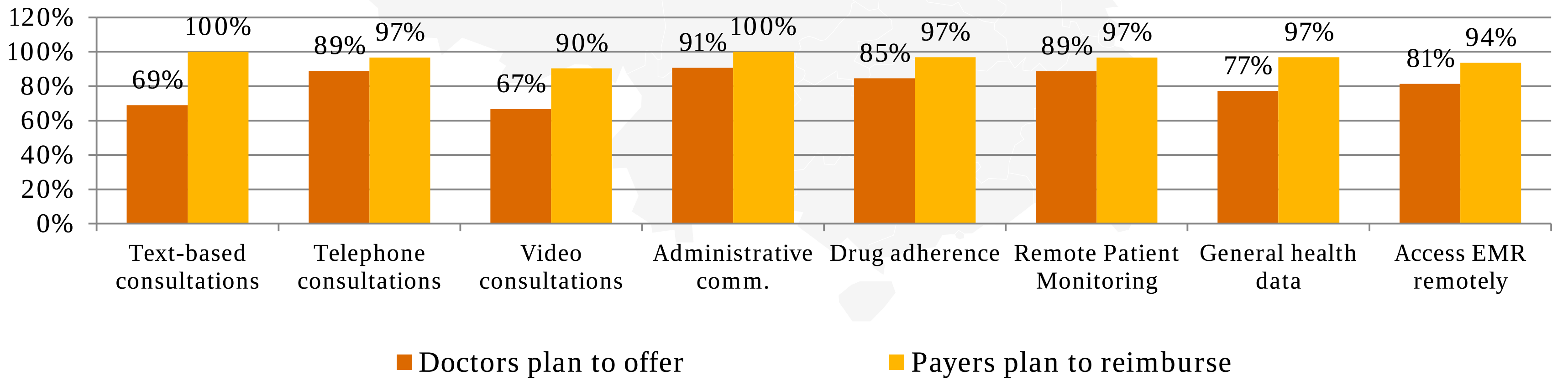
Source: PwC analysis based on EIU research, 2012

China - Potential and services

Widespread adoption of mHealth services in my country is inevitable in the near future



Services physicians would like to offer and payers plan to reimburse for in the next 3 years



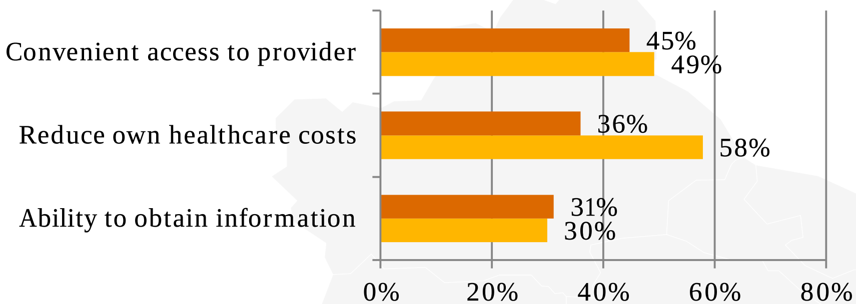
Source: PwC analysis based on EIU research, 2012

China - Top 3 drivers and barriers for patients and physicians

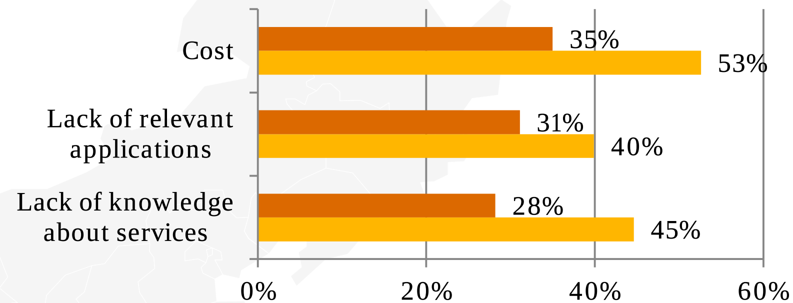
■ China ■ Emerging countries (excl. China)

Patients

Drivers

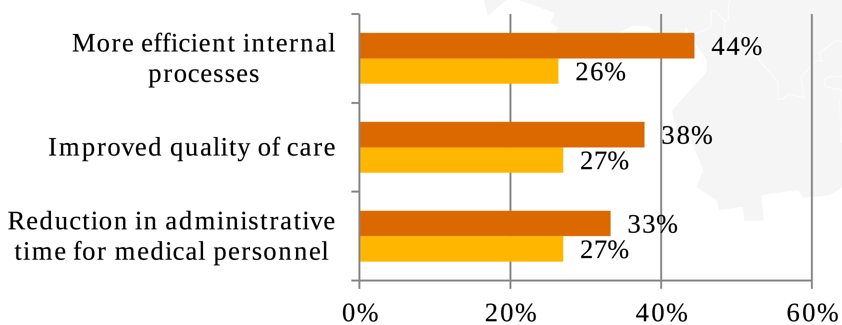


Barriers

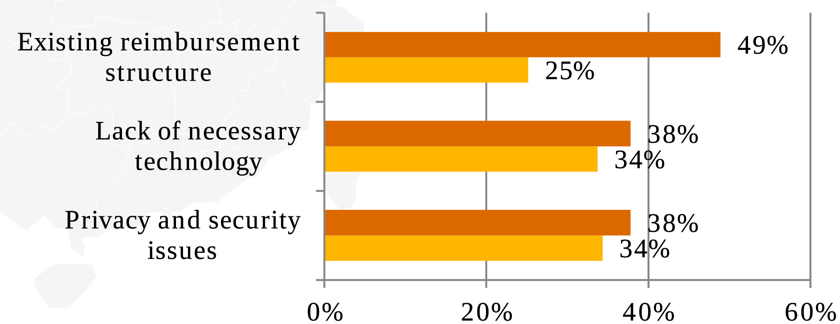


Physicians

Drivers



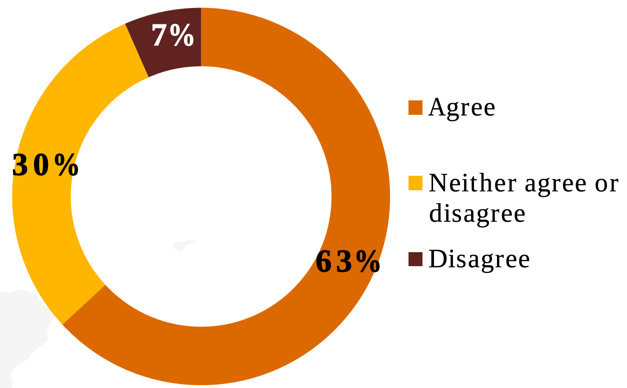
Barriers



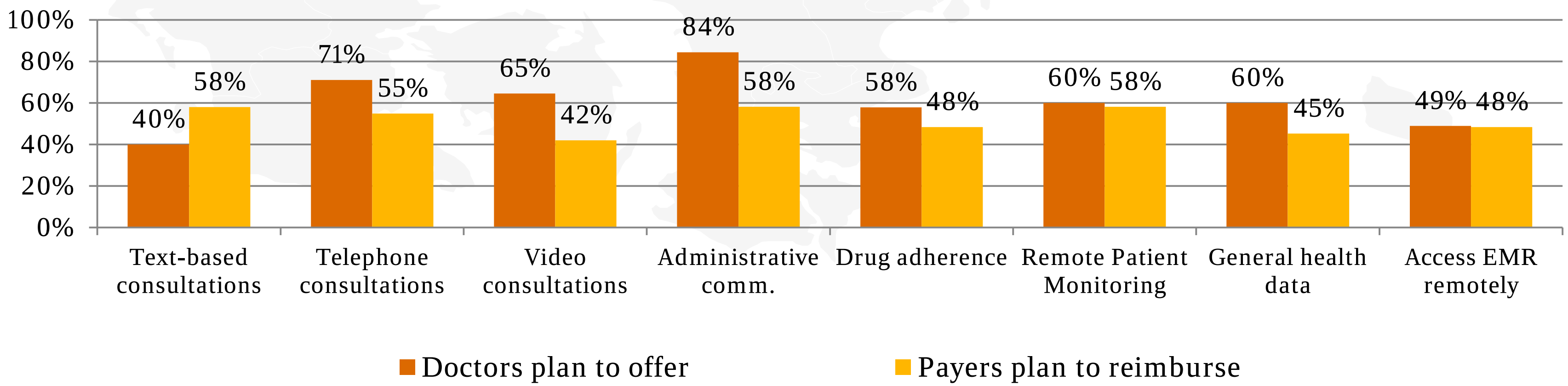
Source: PwC analysis based on EIU research, 2012

Denmark - Potential and services

Widespread adoption of mHealth services in my country is inevitable in the near future



Services physicians would like to offer and payers plan to reimburse for in the next 3 years



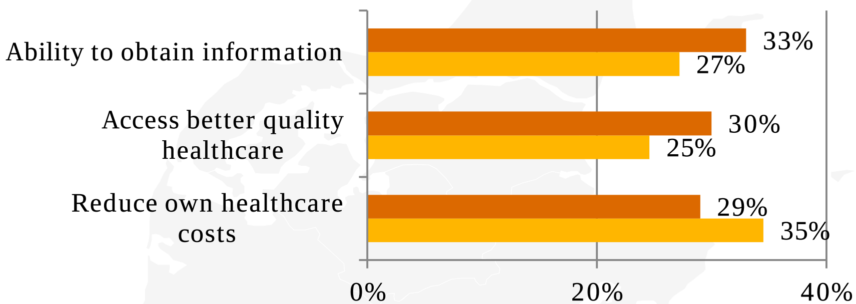
Source: PwC analysis based on EIU research, 2012

Denmark - Top 3 drivers and barriers for patients and physicians

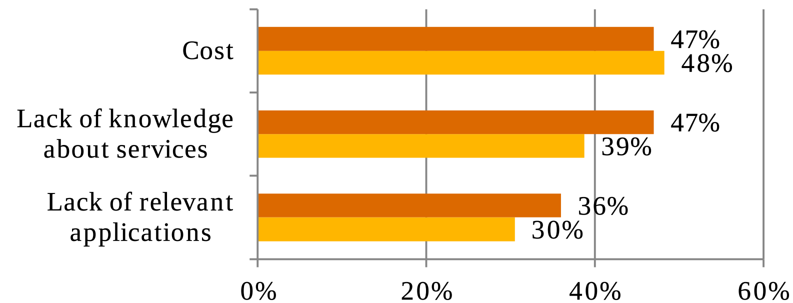
■ Denmark ■ Developed countries (excl. Denmark)

Patients

Drivers

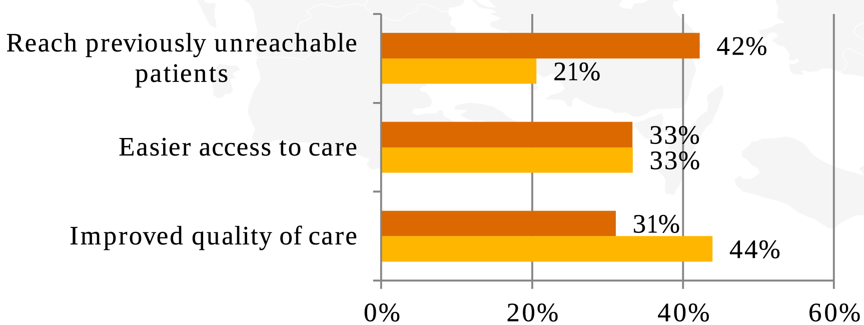


Barriers

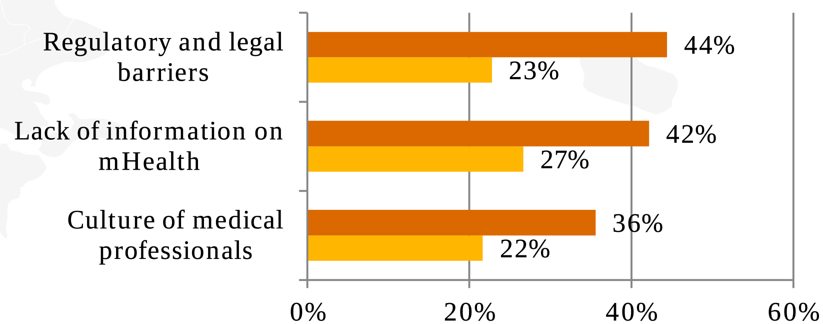


Physicians

Drivers



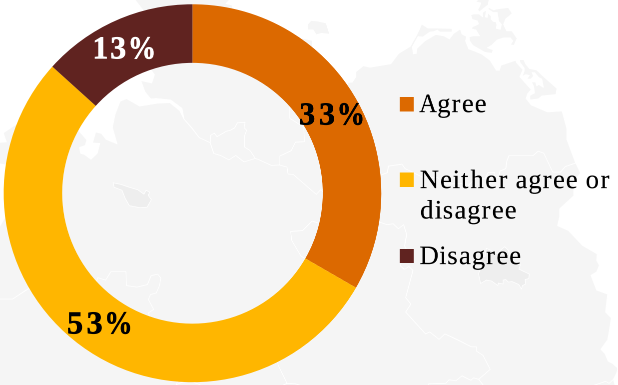
Barriers



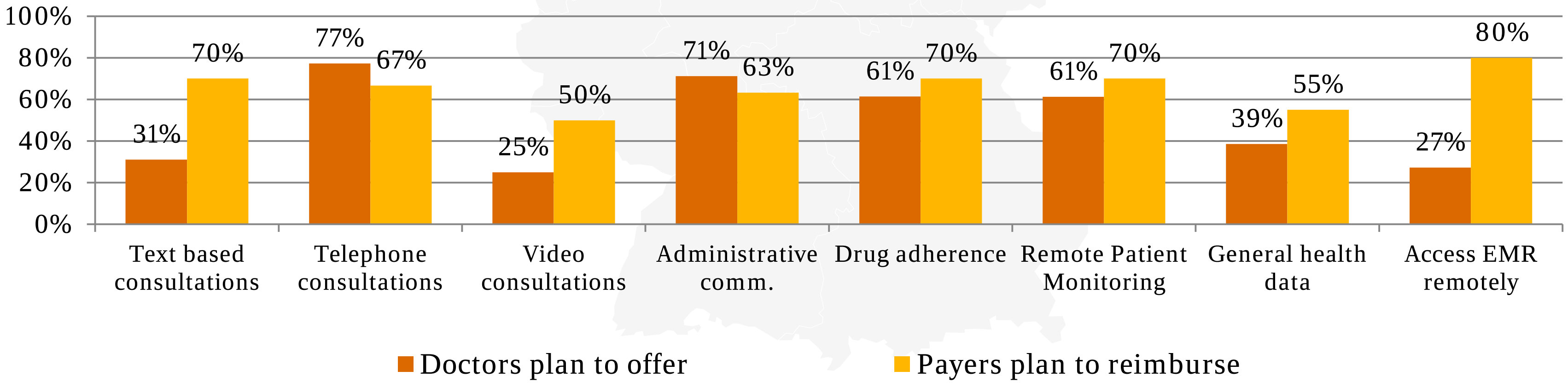
Source: PwC analysis based on EIU research, 2012

Germany - Potential and services

Widespread adoption of mHealth services in my country is inevitable in the near future



Services physicians would like to offer and payers plan to reimburse for in the next 3 years

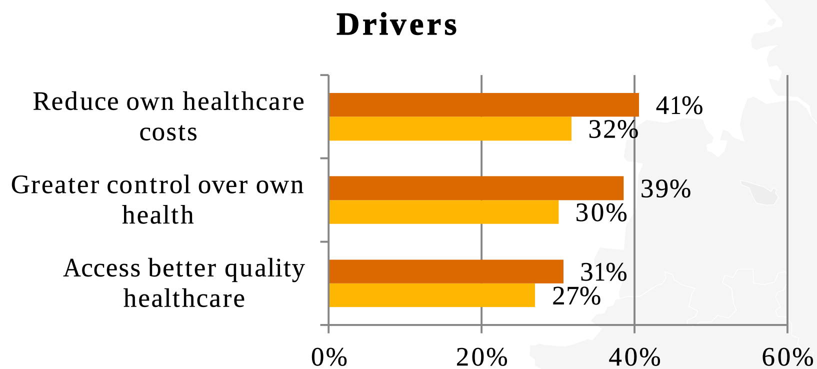


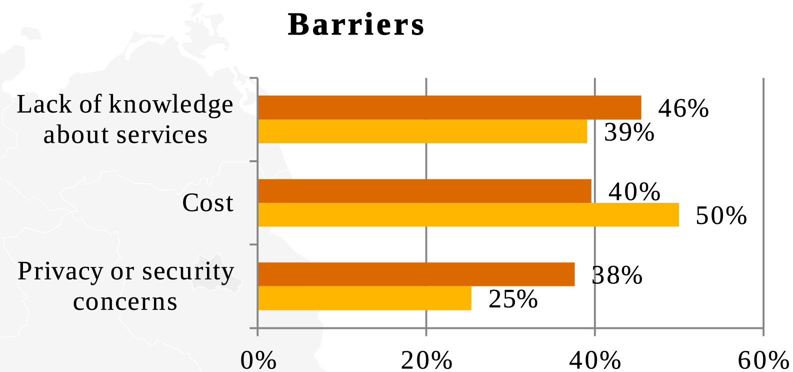
Source: PwC analysis based on EIU research, 2012

Germany - Top 3 drivers and barriers for patients and physicians

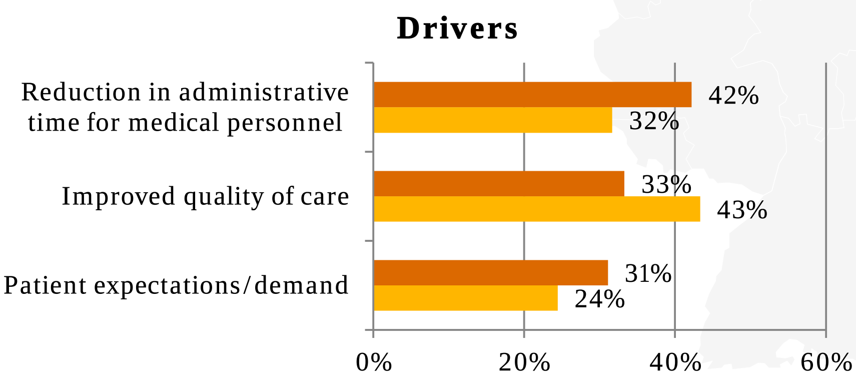
Germany   Developed countries (excl. Germany)

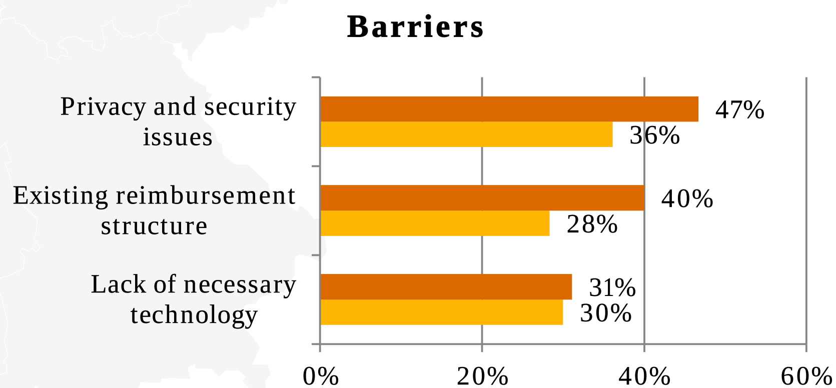
Patients





Physicians

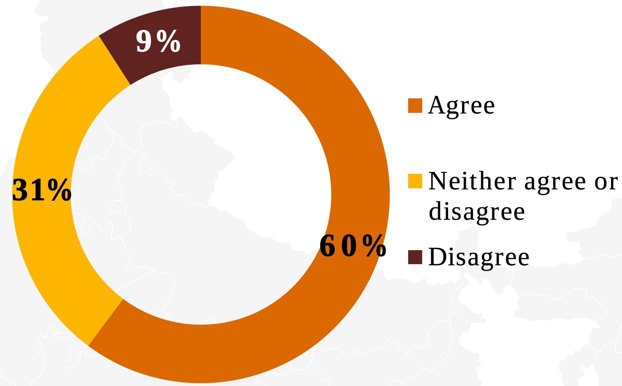




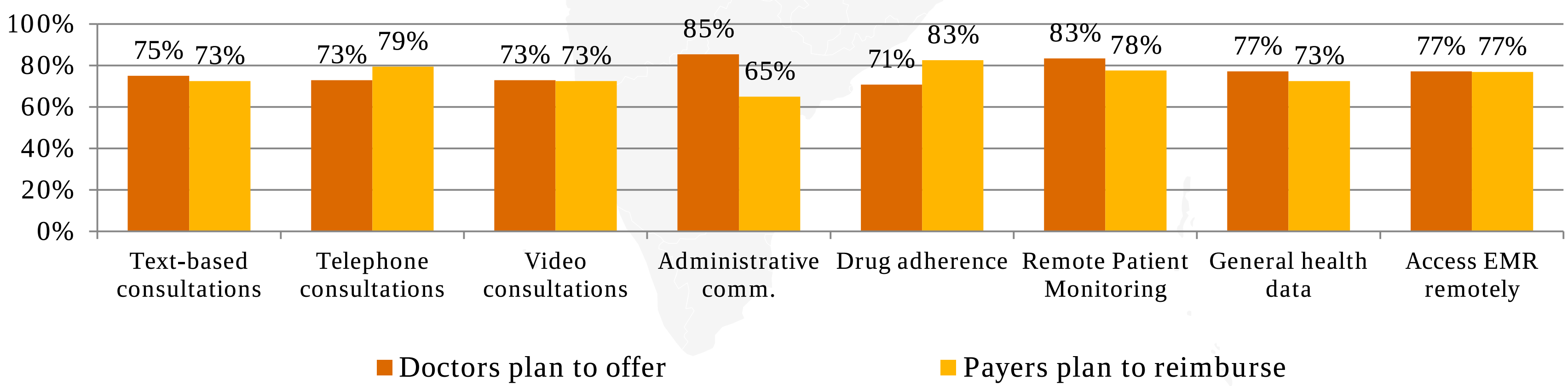
Source: PwC analysis based on EIU research, 2012

India - Potential and services

Widespread adoption of mHealth services in my country is inevitable in the near future



Services physicians would like to offer and payers plan to reimburse for in the next 3 years

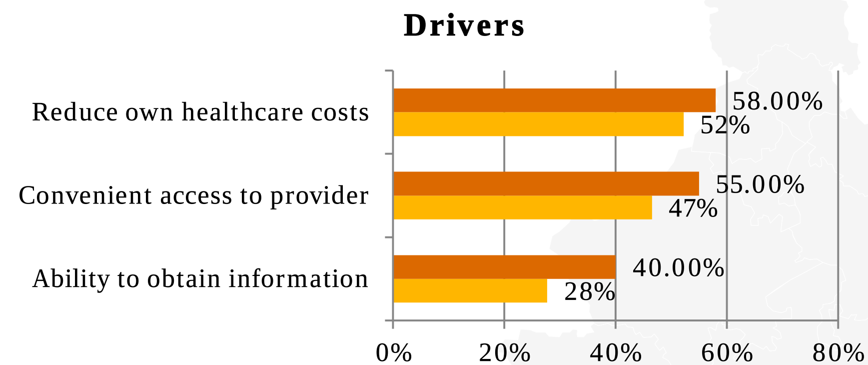


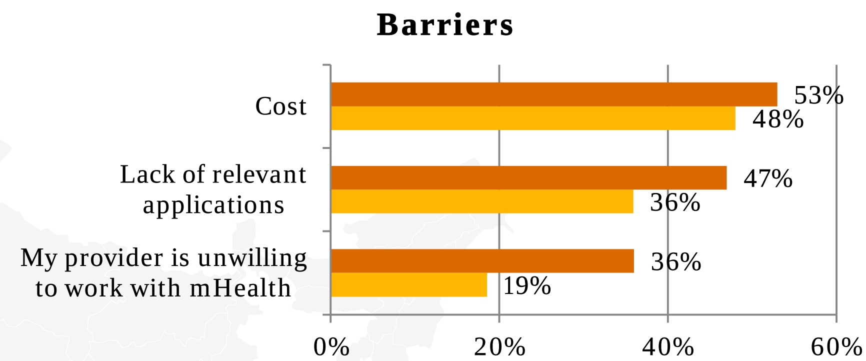
Source: PwC analysis based on EIU research, 2012

India - Top 3 drivers and barriers for patients and physicians

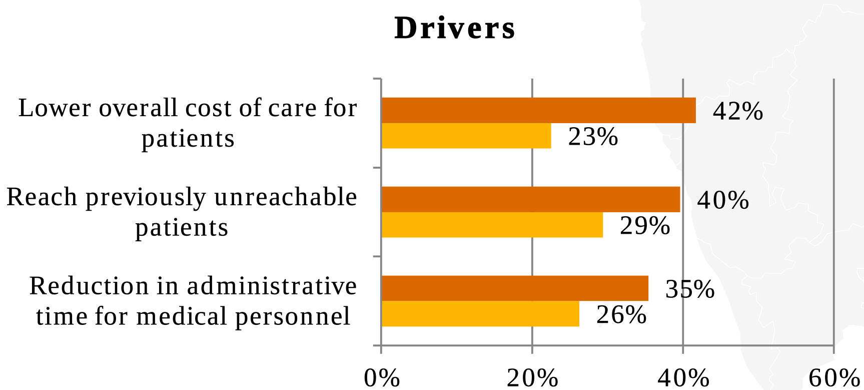
■ India ■ Emerging countries (excl. India)

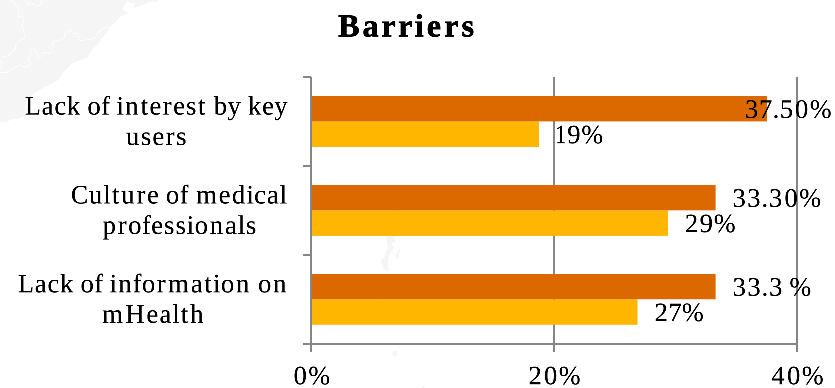
Patients





Physicians

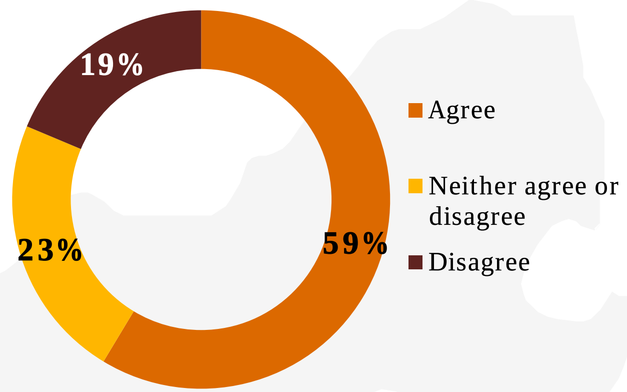




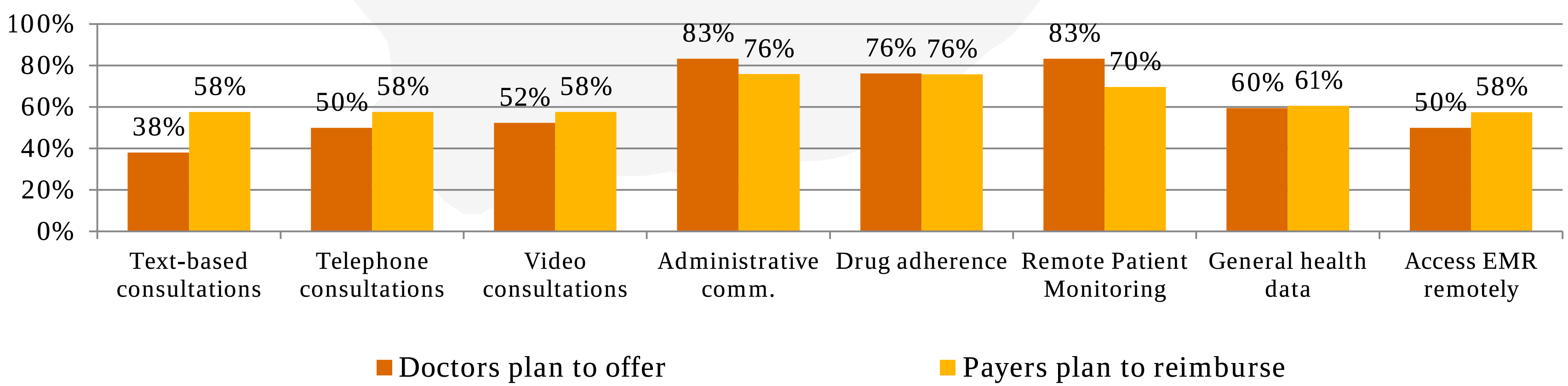
Source: PwC analysis based on EIU research, 2012

South Africa - Potential and services

Widespread adoption of mHealth services in my country is inevitable in the near future



Services physicians would like to offer and payers plan to reimburse for in the next 3 years



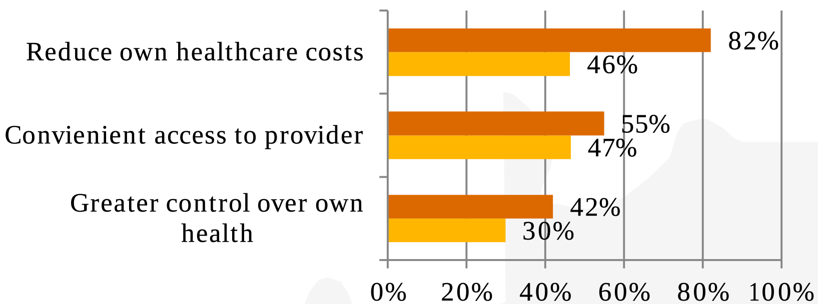
Source: PwC analysis based on EIU research, 2012

South Africa - Top 3 drivers and barriers for patients and physicians

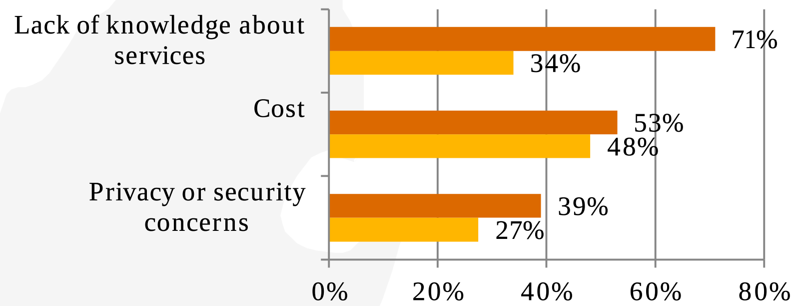
Patients

■ South Africa ■ Emerging countries (excl. South Africa)

Drivers

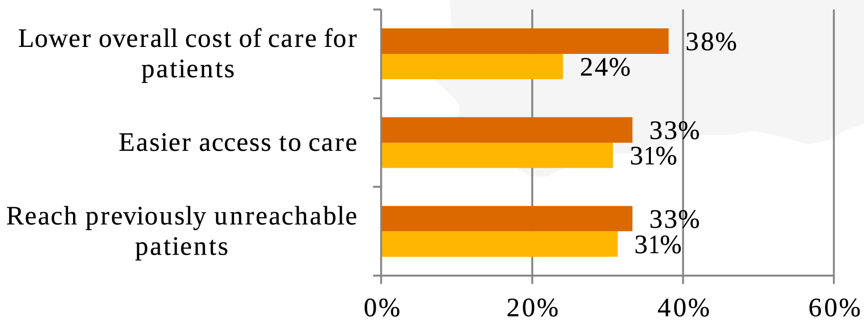


Barriers

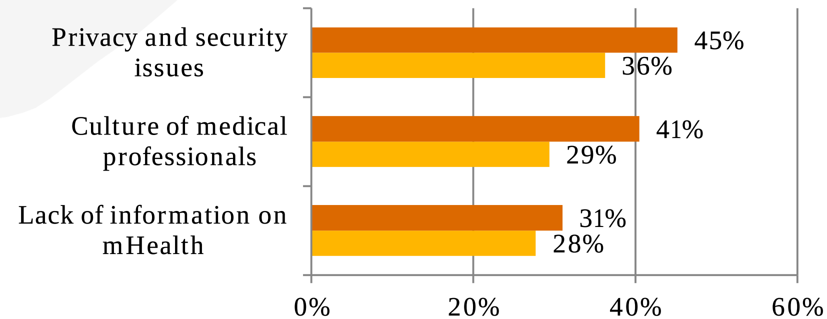


Physicians

Drivers



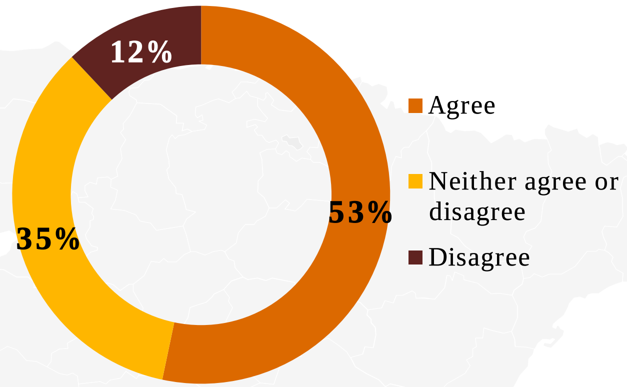
Barriers



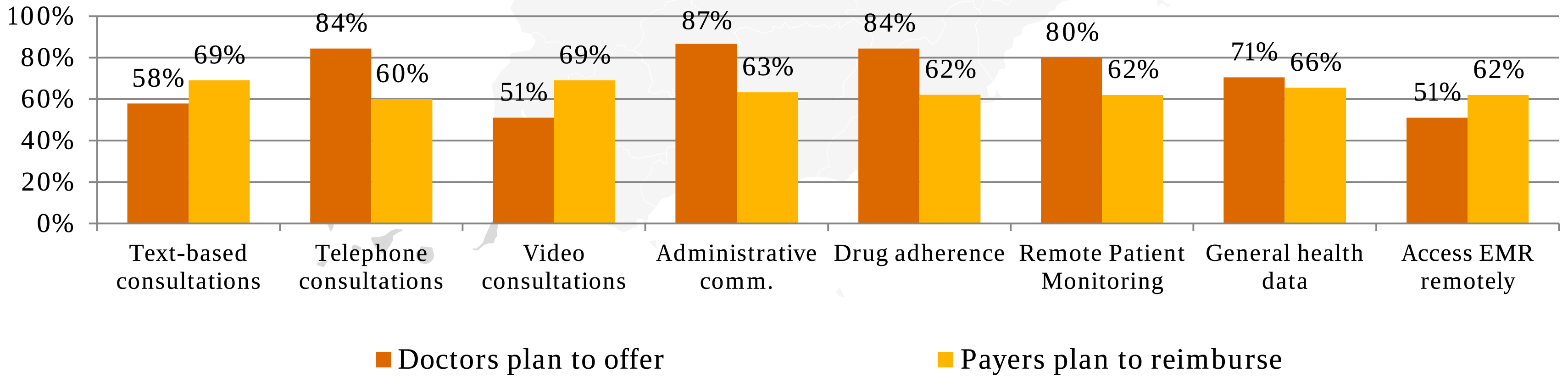
Source: PwC analysis based on EIU research, 2012

Spain - Potential and services

Widespread adoption of mHealth services in my country is inevitable in the near future



Services physicians would like to offer and payers plan to reimburse for in the next 3 years



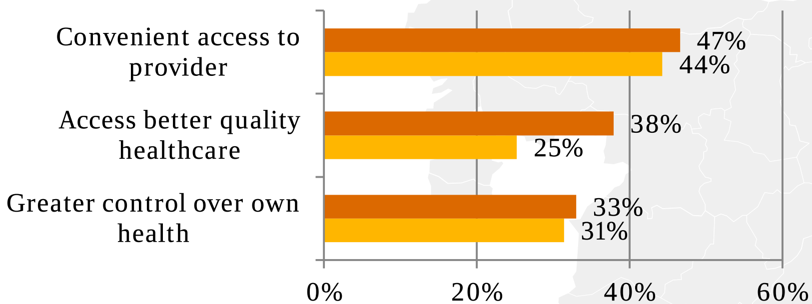
Source: PwC analysis based on EIU research, 2012

Spain - Top 3 drivers and barriers for patients and physicians

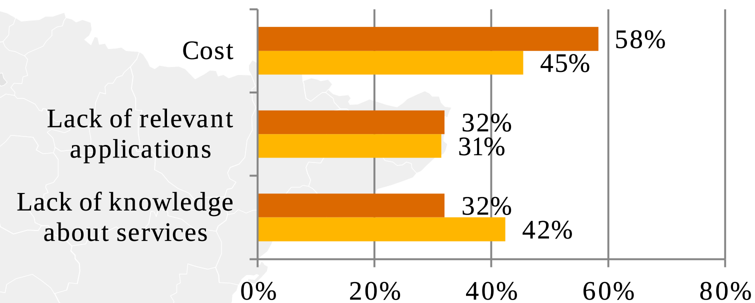
Patients

■ Spain ■ Developed countries (excl. Spain)

Drivers

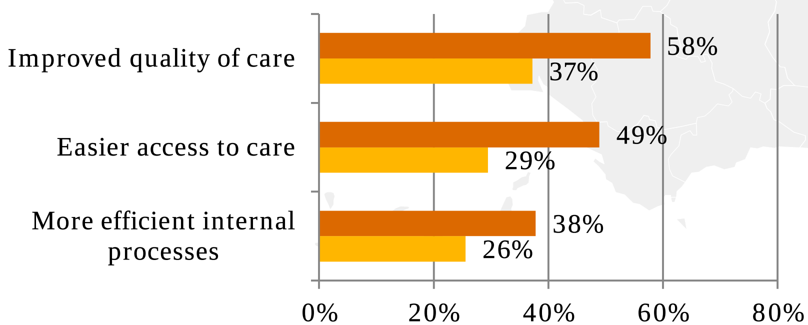


Barriers

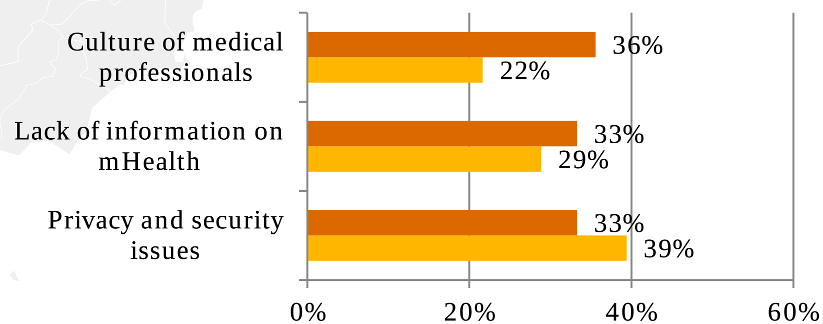


Physicians

Drivers



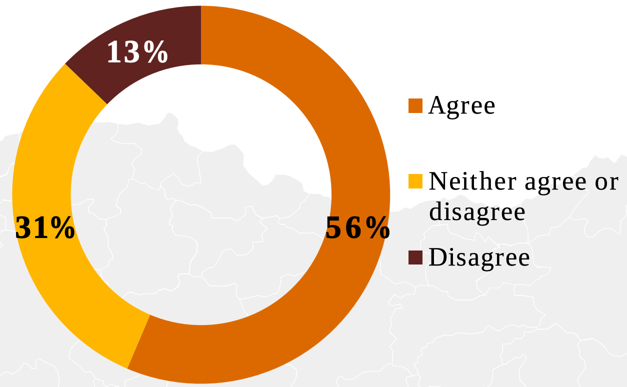
Barriers



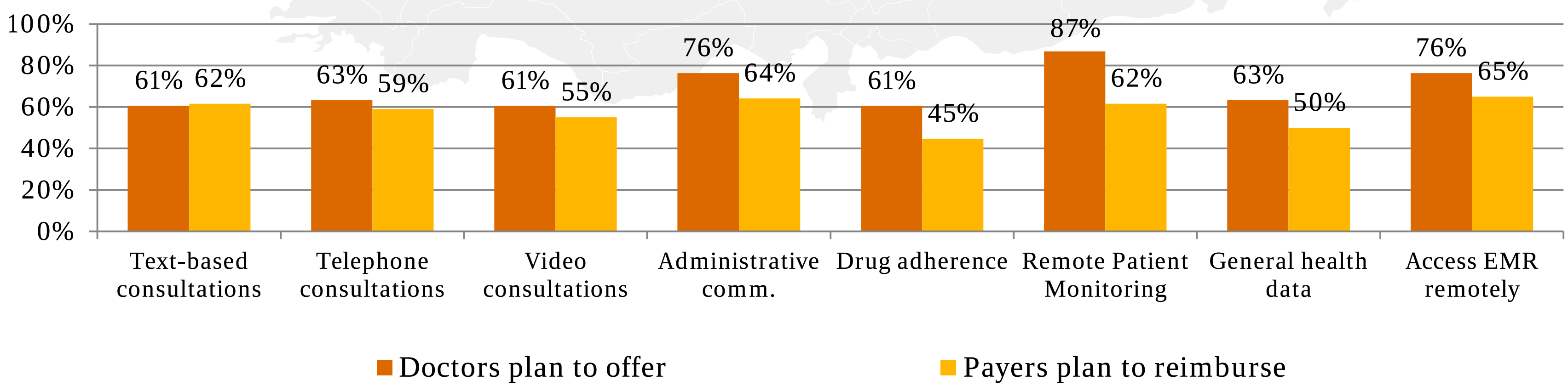
Source: PwC analysis based on EIU research, 2012

Turkey - Potential and services

Widespread adoption of mHealth services in my country is inevitable in the near future



Services physicians would like to offer and payers plan to reimburse for in the next 3 years



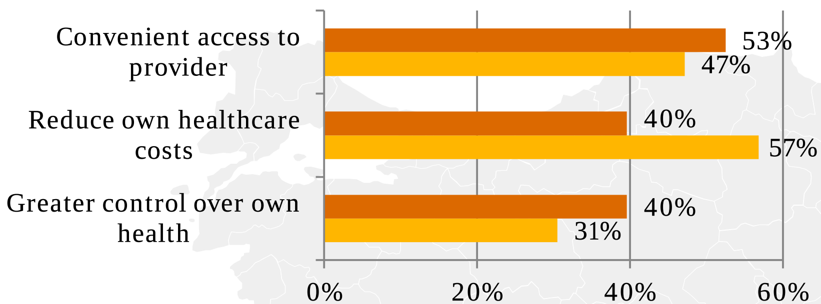
Source: PwC analysis based on EIU research, 2012

Turkey - Top 3 drivers and barriers for patients and physicians

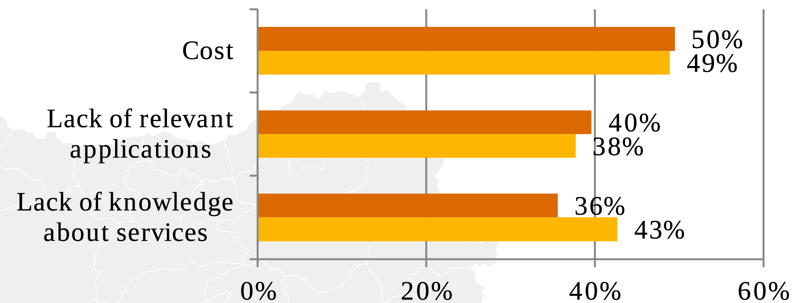
Patients

■ Turkey ■ Emerging countries (excl. Turkey)

Drivers

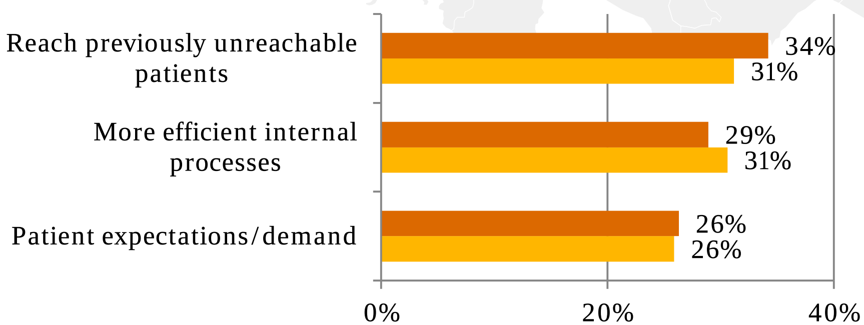


Barriers

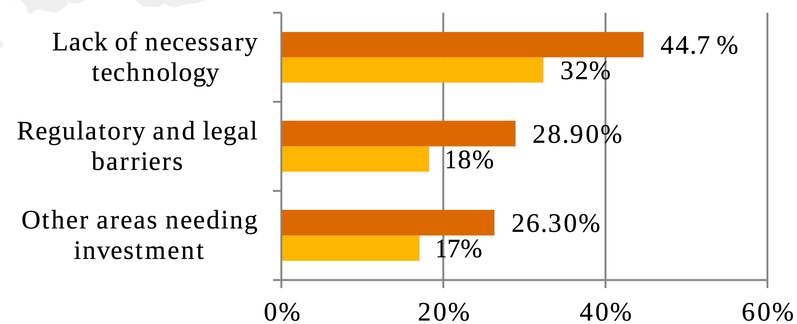


Physician

Drivers



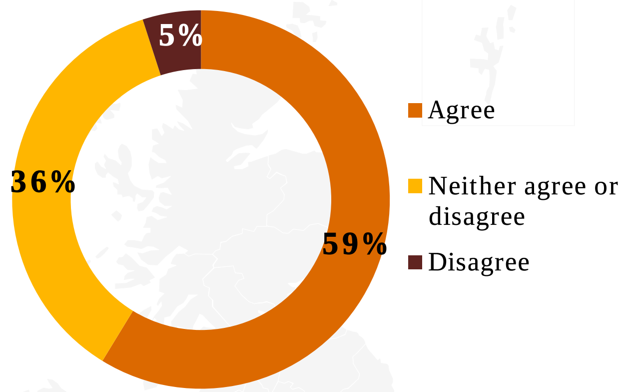
Barriers



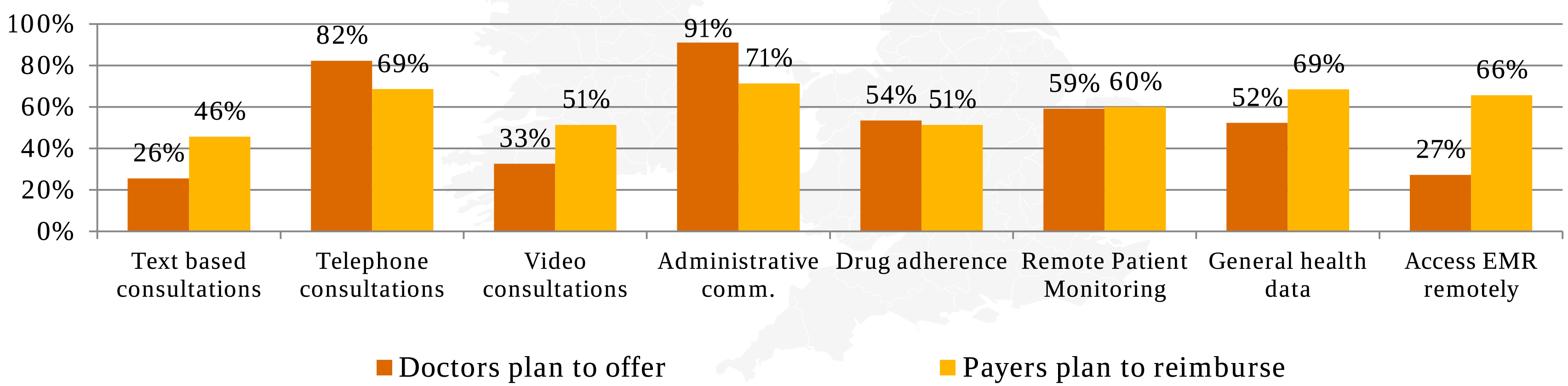
Source: PwC analysis based on EIU research, 2012

United Kingdom - Potential and services

Widespread adoption of mHealth services in my country is inevitable in the near future



Services physicians would like to offer and payers plan to reimburse for in the next 3 years



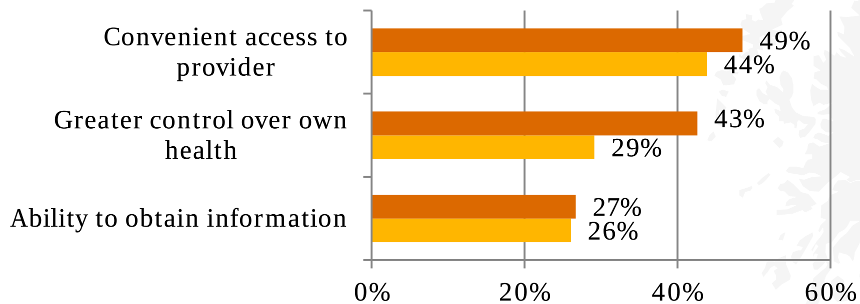
Source: PwC analysis based on EIU research, 2012

United Kingdom - Top 3 drivers and barriers for patients and physicians

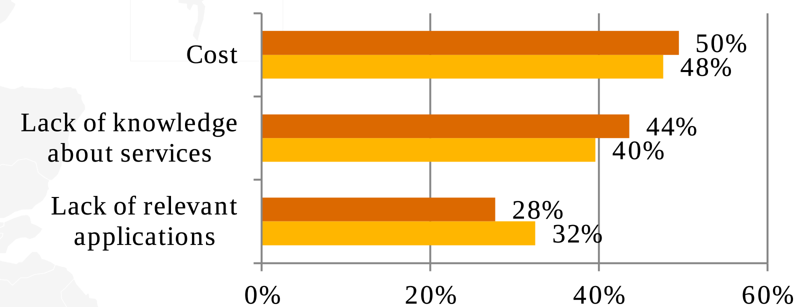
■ UK ■ Developed countries (excl. UK)

Patients

Drivers

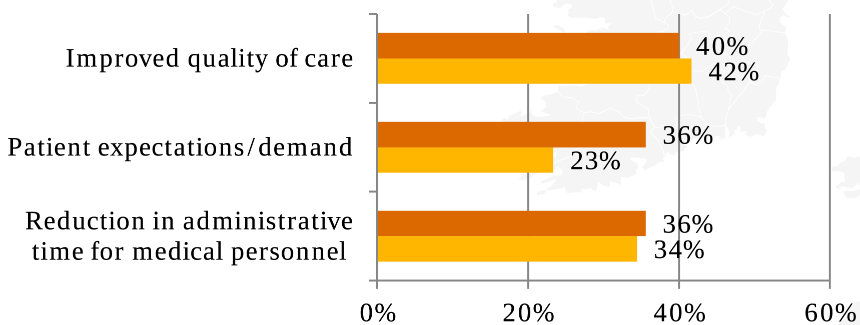


Barriers

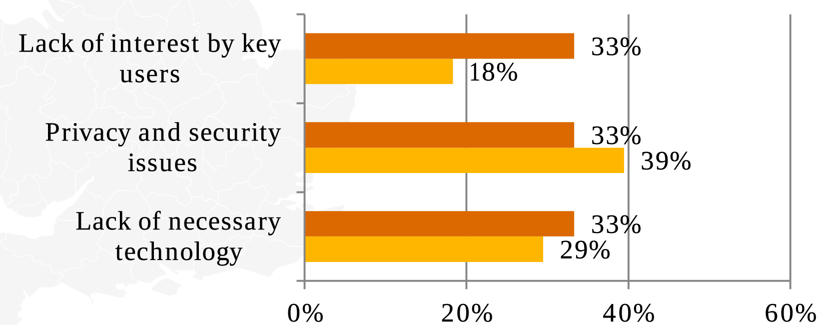


Physicians

Drivers



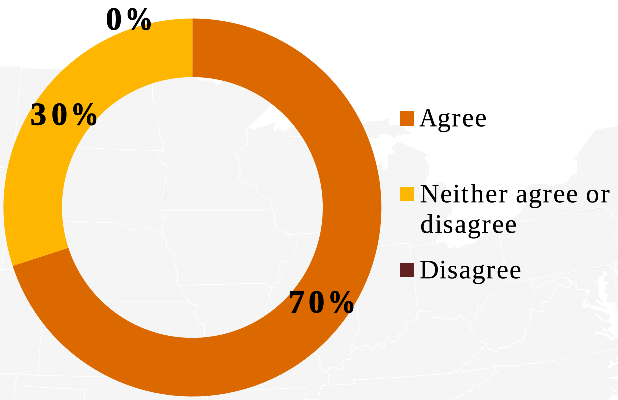
Barriers



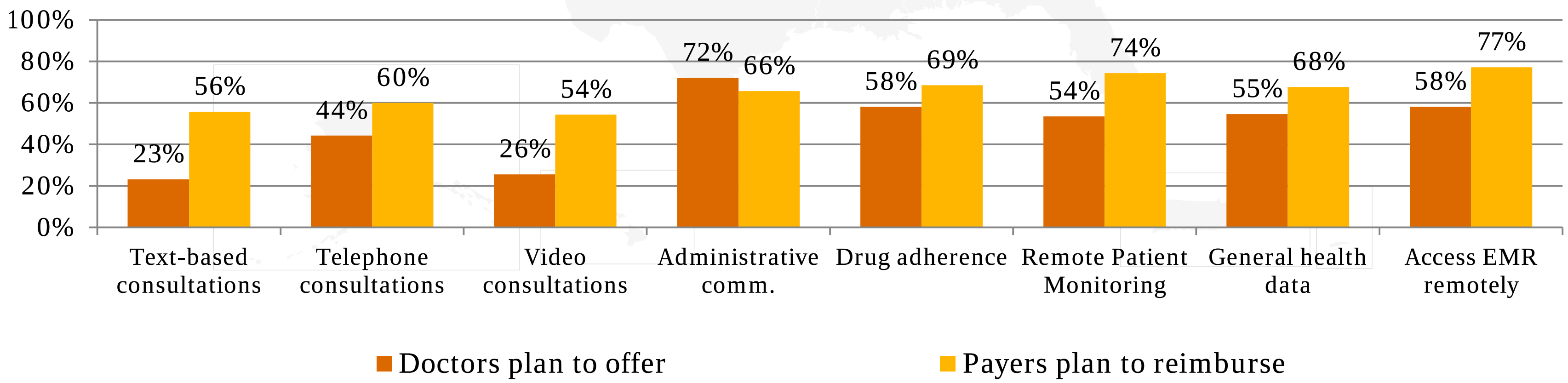
Source: PwC analysis based on EIU research, 2012

United States - Potential and services

Widespread adoption of mHealth services in my country is inevitable in the near future



Services physicians would like to offer and payers plan to reimburse for in the next 3 years



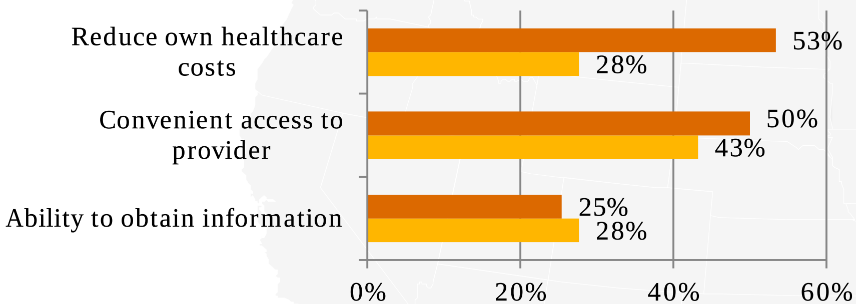
Source: PwC analysis based on EIU research, 2012

United States - Top 3 drivers and barriers for patients and physicians

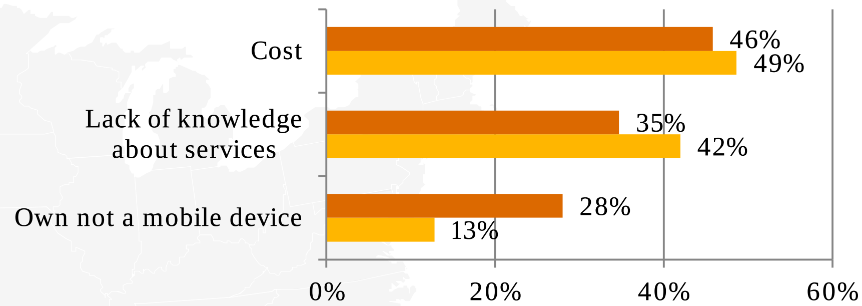
Patients

US ■ Developed countries (excl. US)

Drivers

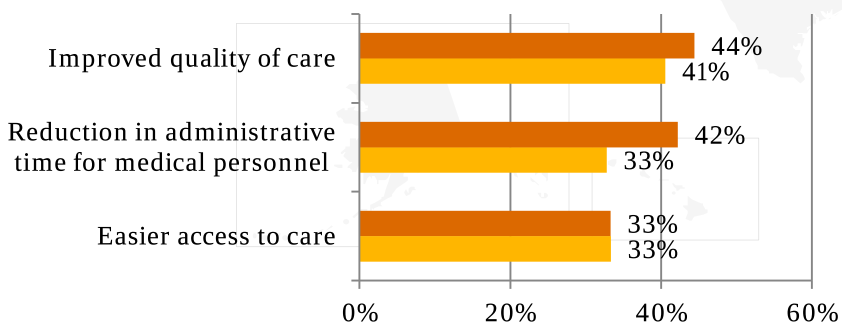


Barriers

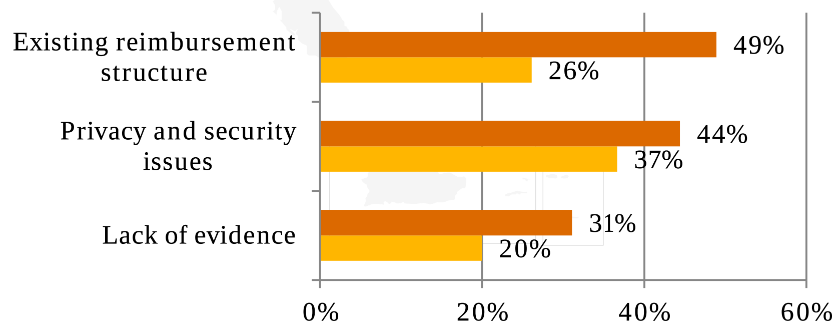


Physicians

Drivers



Barriers



Source: PwC analysis based on EIU research, 2012

5. Global contacts

Global contacts

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Appendix

mHealth scorecard – Detailed scores per dimension

Area	South Africa	India	Brazil	US	Germany	Spain	China	Denmark	Turkey	UK
Overall Score	6.0	5.7	5.6	5.2	5.1	5.1	5.0	4.8	4.7	4.7
Awareness and openness	5.5	7.0	6.2	3.5	4.4	5.1	7.0	3.1	4.9	2.4
Encouraging environment	6.6	7.1	7.0	2.8	4.7	6.1	5.8	3.9	4.8	3.0
Current use	4.3	6.9	5.3	4.2	4.1	4.1	8.3	2.4	5.0	1.8
Regulatory environment, reimbursement and business model	6.8	5.8	6.7	4.6	5.9	6.8	3.3	6.0	5.5	6.6
Reimbursement and business model	7.3	6.8	7.4	4.2	5.3	6.0	3.9	6.4	5.4	5.4
Encouraging regulatory environment	6.3	4.9	6.0	5.0	6.5	7.6	2.8	5.6	5.5	7.7
Technology	5.9	3.2	4.3	6.8	6.0	4.6	3.7	7.3	4.6	5.7
Access and security	7.1	4.8	6.5	5.2	5.0	4.3	3.0	6.6	4.6	5.9
Interoperability	4.7	1.6	2.2	8.5	6.9	5.0	4.5	8.1	4.7	5.5
Impact	6.0	6.6	6.0	5.3	4.2	2.9	5.9	4.0	3.8	4.0
Impact on institution	6.5	6.7	6.7	4.3	4.7	3.7	6.4	4.0	3.8	3.9
Impact on Healthcare system	5.4	6.5	5.3	6.3	3.6	2.2	5.4	3.9	3.9	4.2

Source: PwC analysis based on EIU research, 2012

Questions per dimension

1	**Awareness and openness**
1.1	***Encouraging environment***
	Doctors encouraging patients to adopt a range of mHealth applications and services
	Patients expecting that mHealth applications/services will improve the quality of healthcare they receive in the next 3 years.
	Patients expecting that mHealth applications/services will make healthcare substantially more convenient in the next 3 years
	Percentage of patients familiar with the terms "mobile health" or "mHealth"
	Percentage of patients who would be interested in using mHealth applications/services
	Patients who are willing to pay more than $5 annually for a service - median from a set of services
1.2	***Current use***
	Patients using mHealth services to manage their personal healthcare
	Doctors using mHealth services in managing their personal healthcare
	Doctors who use mobile internet at work to provide healthcare
	Doctors who have begun to offer services via mobile devices
2	**Regulatory environment, reimbursement and business model**
2.1	***Reimbursement and business model***
	Doctors who say that existing payment structures for health services discourage them from taking advantage of potential efficiencies in mHealth
	Doctors who say that today's mHealth market has exciting possibilities but too few proven business models
	Patients willing to pay annually for an application/service more than $5
	Patients expecting that mHealth applications/services will substantially reduce their overall healthcare costs in the next 3 years
2.2	***Regulatory and legal environment***
	Doctors believing mHealth advances are being held up by regulation created for older technologies that does not translate well to newer ones
	Payers who say that the regulatory and legal framework are leading barriers to greater adoption of mHealth applications or services
	Providers who say that the regulatory and legal framework are leading barriers to greater adoption of mHealth applications or services

Source: PwC analysis based on EIU research, 2012

Questions per dimension (cont.)

3	**Technology**
3.1	***Access and security***
	Doctors with access to mobile internet at work
	Percentage of doctors considering their internet access at work very secure
	Mobile penetration rate (Source: ITU)
3.2	***Interoperability***
	Patients frustrated by incompatibilities of mHealth solutions
	Organisations that are reluctant to invest heavily in mHealth until the technology becomes more standardised, or interoperable
4	**Impact**
4.1	***Institutional***
	Doctors expecting a noticeable effect on their medical care from mHealth - Currently
	Doctors expecting a noticeable effect on their medical care from mHealth - In three years
	Doctors expecting a positive impact on relationships with patients
	Doctors expecting a positive impact on internal operations
4.2	***Healthcare***
	Patients who are expecting little effect on healthcare through mHealth
	Patients who are expecting mHealth services will improve a great deal in the next three years
	Patients who are considering mHealth as a more effective way to adopt healthier lifestyle
	Doctors expecting inevitable widespread adoption of mHealth applications and services is in the near future (6)

Source: PwC analysis based on EIU research, 2012

Detailed results of drivers and barriers for patients

Drivers

Drivers	Total	
Reduce own healthcare costs	444	43.2 %
Convenient access to provider	477	46.4 %
Ability to obtain information	289	28.1 %
Encouragement from my healthcare provider	153	14.9 %
Encouragement from healthcare payer	123	12.0 %
Greater control over my own health	329	32.0 %
Manage aspects of my life from my mobile phone	104	10.1 %
Manage a particular medical condition	149	14.5 %
Access to better quality healthcare	261	25.4 %
Access to a greater choice of applications	97	9.4 %
Other	32	3.1 %
Total	1027	100.0 %

Barriers

Barriers	Total	
Cost	498	48.5 %
Lack of relevant applications	357	34.8 %
My providers are unwilling to work with mHealth	190	18.5 %
Privacy or security concerns	295	28.7 %
Lack of knowledge about services	419	40.8 %
Inconvenience and time involved in setting up mHealth	117	11.4 %
Already satisfied with current possibilities	124	12.1 %
Incompatible mHealth applications/services therefore takes more time to set up mHealth	92	9.0 %
Difficulties understanding the content of services	104	10.1 %
Don’t own a mobile device	134	13.0 %
Other	17	1.7 %
Total	1027	100.0 %

Source: PwC analysis based on EIU research, 2012

Detailed results of drivers and barriers for physicians

Drivers

Drivers	Total	
Lower overall cost of care for patients	109	25.2 %
Easier access to care	140	32.3 %
Reach previously unreachable patients	122	28.2 %
Improved quality of care	154	35.6 %
More efficient internal processes	126	29.1 %
Patient expectations/demand	112	25.9 %
Expectation of medical personnel	57	13.2 %
Opportunity to provide new services	75	17.3 %
Ubiquity of smartphones	69	15.9 %
Encouragement by regulators	60	13.9 %
Reduction in administrative time for medical personnel	137	31.6 %
Other, please specify	2	0.5 %
Total	433	100.0 %

Barriers

Barriers	Total	
Other areas needing investment	83	19.2 %
Existing reimbursement structure	132	30.5 %
Lack of compatibility	111	25.6 %
Lack of evidence	96	22.2 %
Lack of necessary technology	140	32.3 %
Regulatory and legal barriers	103	23.8 %
Lack of interest by key users	96	22.2 %
Privacy and security issues	159	36.7 %
Culture of medical professionals	118	27.3 %
Lack of information on mHealth	126	29.1 %
Other, please specify	5	1.2 %
Total	433	100.0 %

Source: PwC analysis based on EIU research, 2012