Digital Health Study
Physicians' motivations and requirements for adopting digital clinical tools

AMA
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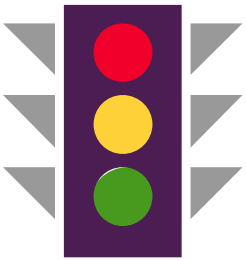
1
Introduction: Digital Health Tools

What **attracts** physicians to digital tools?



What are their **requirements** for adoption?

Key findings

1 Where is the digital divide?

Most US physicians are using a few digital tools today and expect to use more in the near future. Heavier users tend to be **PCPs** and physicians in **large and complex practices**. Age is less of a factor than practice size and setting.

2 What's the appeal of digital tools?

Physicians want digital healthcare tools to **do what they do better**

- Improve practice efficiency
- Increase patient safety
- Improve diagnostic ability
- Reduce burnout
- Improve physician patient relationship

3 What do physicians require for adoption?

Physicians require digital tools to fit within their **existing systems** and practices

- Coverage for liability
- Data privacy is assured by experts
- Linked to EMR
- Billing/reimbursement

4 How do they want to be involved?

Whether employees or owners physicians want to be **part of the decision making** but they look to others as well

- IT experts for technical issues such as data safety
- Practice leaders for buying decisions

2
Study background

Digital Health Tools:
What attracts physicians?
What are their requirements for adoption?

Objective

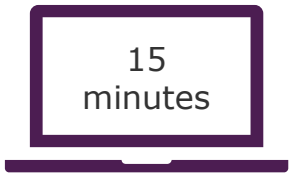
Interest in digital healthcare tools is high among developers, regulators, insurers as well as some patients and physicians. However, given the challenges of implementing electronic patient records there is a need for rigorous understanding of physicians' motivations and their requirements for successful integrating these technologies into their practices.

Action

The AMA will use this study as it develops principles and best practices to

- Support its advocacy on behalf of physicians
- Affect the trajectory of the digital health marketplace
- Connect the voice of the physician to new technologies being developed

Study methodology



- The AMA contracted with TNS, the largest custom research company, to study US physicians' enthusiasm, needs and requirements for digital tools in general and seven tools in particular
- The study and analysis was conducted under the direction of Lynne Thomson, PhD
- Working in concert with the AMA TNS developed and administered a 15 minute online survey

TNS used WebMD to recruit a sample of 1,300 practicing US physicians

Physicians were incentivized: $45/PCP, $55/Specialist

Requirements for participation:

- Age 28-65
- Practicing physicians including those focused on research, academia or public health
- Full-owner, part-owner or employee of a practice (not an independent contractor)
- Provide a minimum of 20 hours of direct patient care each week

- Stakeholder review and market scan completed
- Literature review
- Eight thought-leader interviews
- Qualitative pre test of questionnaire
- Quantitative fieldwork conducted July 7-18, 2016

Final sample, physician Segments & Sub-groups

Total Physicians	PCPs	Specialists	Age <40	Age 41-50	Age 51+	Solo Practice	Group Practice	Other Practice	AMA Members	Non-Members
N=1300	N=650	N=650	N=289	N=449	N=562	N=196	N=879	N=225	N=359	N=941

Survey instrument

Definitions

Digital healthcare: Digital health encompasses a broad scope of tools that engage patients for clinical purposes; collect, organize, interpret and use clinical data; and manage outcomes and other measures of care quality. This includes, but is not limited to, digital solutions involving telemedicine and telehealth, mobile health (mHealth), wearables (e.g., Fitbit), remote monitoring, apps, and others.

7 Specific tools	Remote monitoring for efficiency	Remote monitoring and management for improved care	Clinical decision support	Patient engagement
	Tele-visits/ virtual visits	Point of care/ workflow enhancement	Consumer access to clinical data	

EHR app store: Imagine that you could improve or extend the features in your EHR by purchasing apps from an app store that would securely integrate into the EHR workflow. This would be a special app store just for clinicians, not an existing store (i.e., Google Play, iTunes). The apps would add capabilities like improved data visualization, decision support, improved documentation in the patient record and integration with other tools and services.

Questions

Overall Involvement in Digital Health

- Impact of on ability to provide care
- Overall motivators/attractants
- Overall functional requirements

Specific digital tools

- Familiarity
- Current use
- Relevance for practice
- Enthusiasm
- Timeline for incorporating into practice
- Ideal level of involvement in Digital Health, in general

Individual tool deep dives

(Ask for up to two relevant solutions, not currently being used)

- Overall motivators/attractants towards solution
- Rank of top 3 motivators/attractants
- Overall functional requirements of solution adoption
- Rank of top 3 functional requirements
- Level of disruption caused by solution
- Ideal level of involvement with decision to incorporate solutions

EHR app store evaluation

- Current use of EHR
- Interest in purchasing from app store (definition above)
- Decision maker for app store purchases
- Importance of app selection criteria

Physician profile

- Age, gender, state, specialty, practice type, practice ownership, years in practice, hours of patient care, professional organization membership)
- Enthusiasm for tech in professional setting
- Influence on tech decision making

Foundation concepts to understand tech adoption

Disruptive innovation

Disruptions that overturn markets are a hot topic across business and technology; however, rigorous study of tech adoption shows that **fitting into** current goals and processes is critical to adoption.

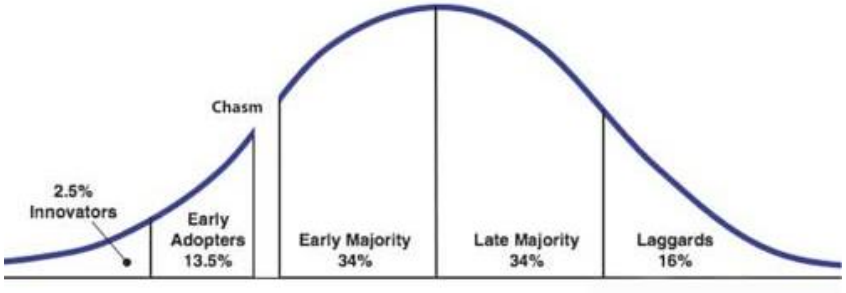
New technologies are adopted rapidly – or at all – to the extent that they

- Solve a problem users readily recognize
- Fit within existing physical environments and processes
- Leverage analogs to telegraph what it does and how I work it

Once a new technology is firmly in place it can facilitate disruption, but the promise of disruption is unlikely to lead to adoption.

Innovation and Diffusion by Bronwyn H Hal, National Bureau of Economic Research, Working Paper 10212

Crossing the chasm



Tech adoption tends to follow a normal curve. Many innovations start strong but stall at 15% penetration; they never cross to the mainstream market.

Innovations with penetration > 15% have significant potential to become mainstream. Those ≤15% are still works in progress.

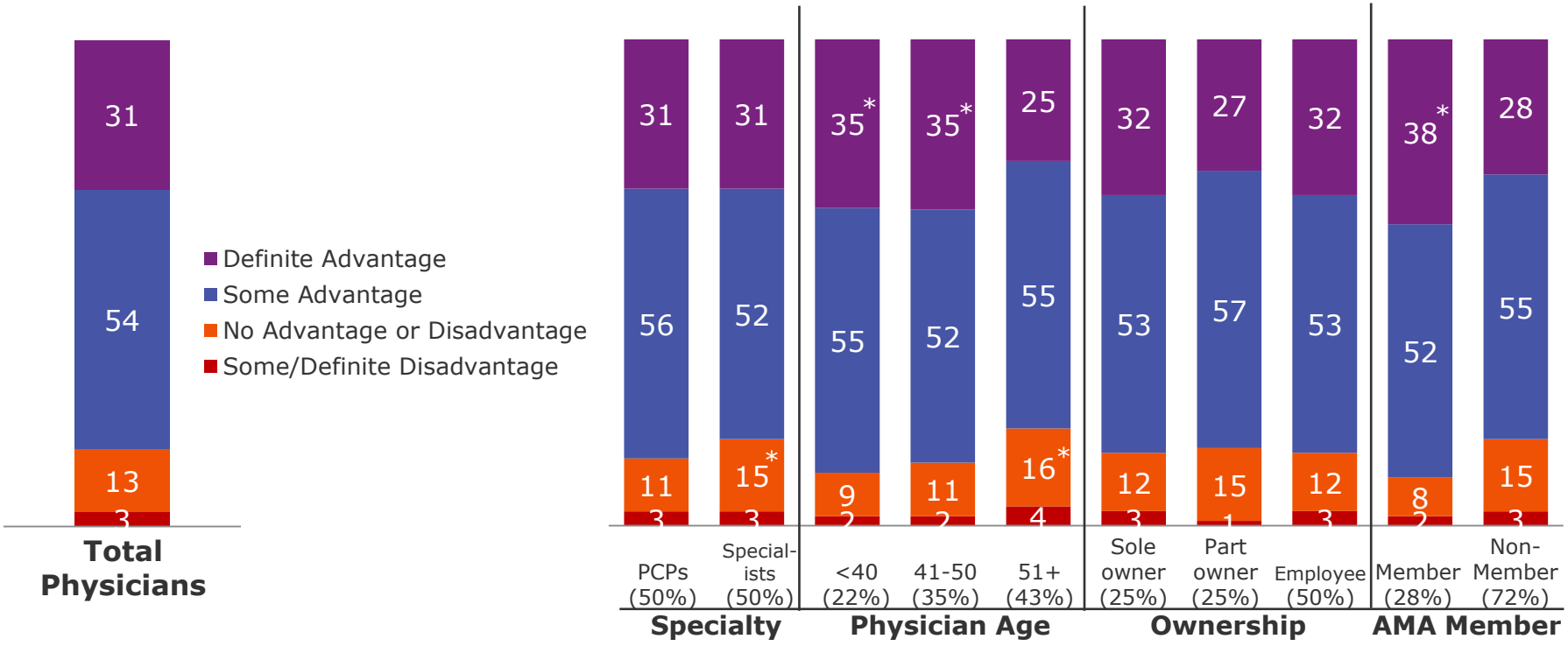
Crossing the Chasm, Geoffrey Moore, 1991

3
Physicians’ perceptions of digital health

- What’s attractive about them
- What do physicians require for adoption
- How do they want to be involved in decisions on adoption and deployment

Most physicians see potential for digital tools to improve patient care

"How much of an advantage do digital health solutions give to your ability to care for your patients?"

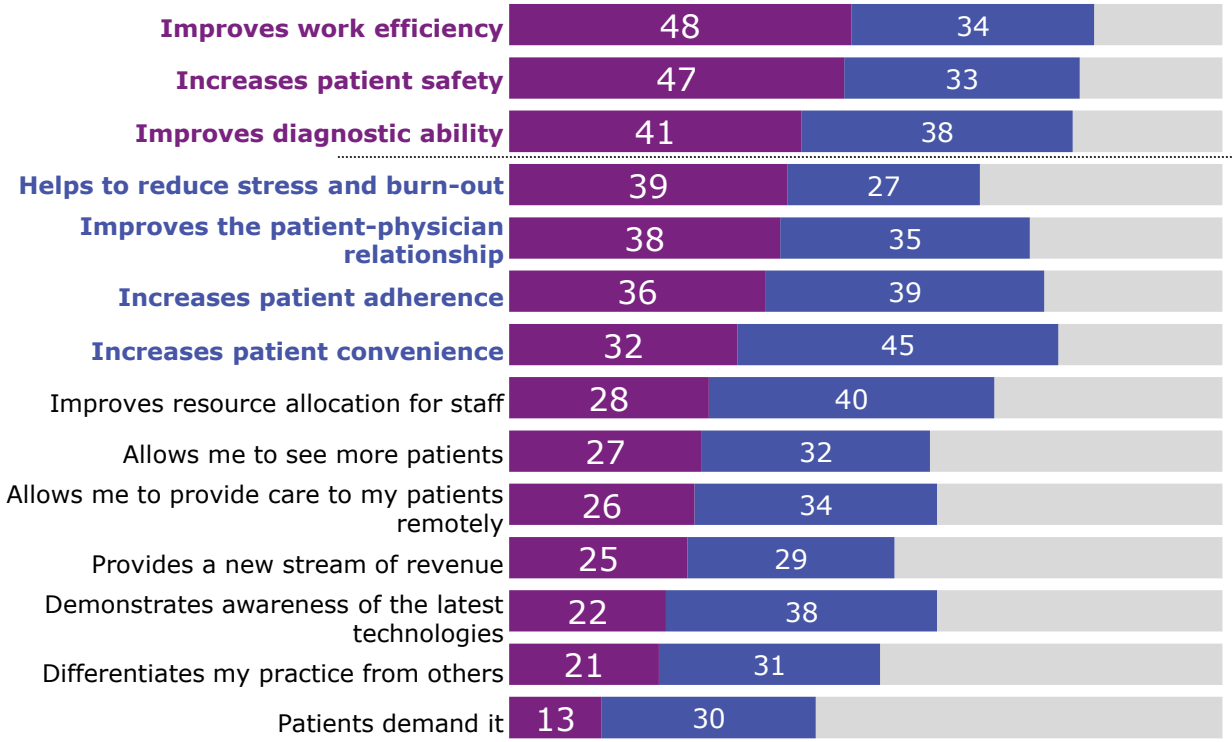


Q16. Considering the overall impact, how much of an advantage do digital health solutions give to your ability to care for your patients?.
Base: Total Physicians (n=1300), PCPs (n=650), Specialists (n=650), Age <40 (n=289), Age 41-50 (n=449), Age 51+ (n=562), Solo Practice (n=196), Group Practice (n=879), Other Practice (n=225), AMA Member (n=359), Non-Member (n=941) *Statistically significantly difference at 95% confidence interval

Physicians are attracted to digital health tools they believe will improve current practices

Younger and female physicians are also optimistic digital tools will improve practice for physicians and patients

What Attracts Physicians to Digital Health Tools?



The broad appeal of digital tools is improving efficiency, patient safety and diagnostic ability

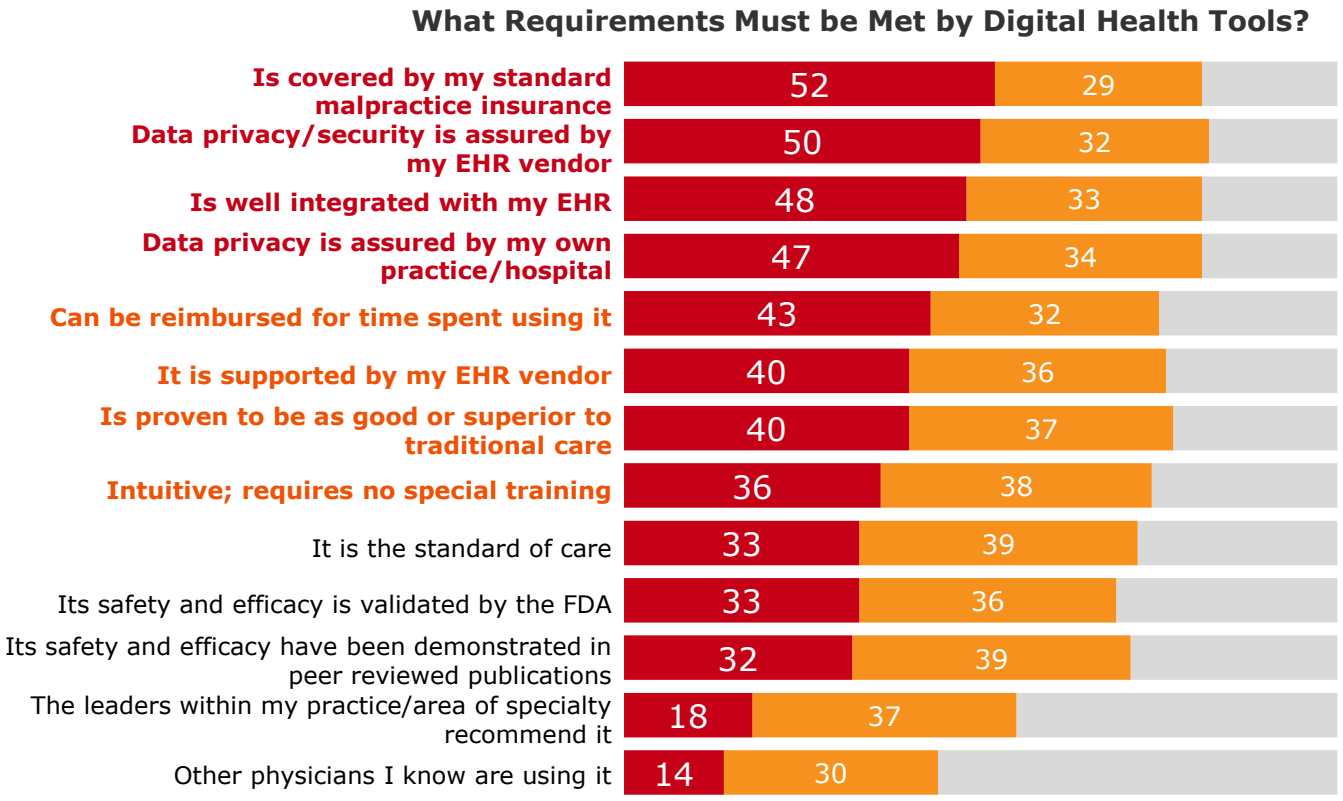
Younger and female physicians also look to tools to help reduce burn-out, improve the patient-physician relationship and increased adherence and convenience for patients

Physicians are less interested in doing something different – seeing more patients or uncovering a new revenue stream

Q17. When thinking about incorporating digital health solutions into your practice, how important would each factor be?
Base: Total Physicians (n=1300)

5 – Very Important
4
3, 2, 1- Not Important

Physicians need tools to fit within current systems Look to tech experts to insure privacy, security



Malpractice coverage, data privacy and workflow integration are essential

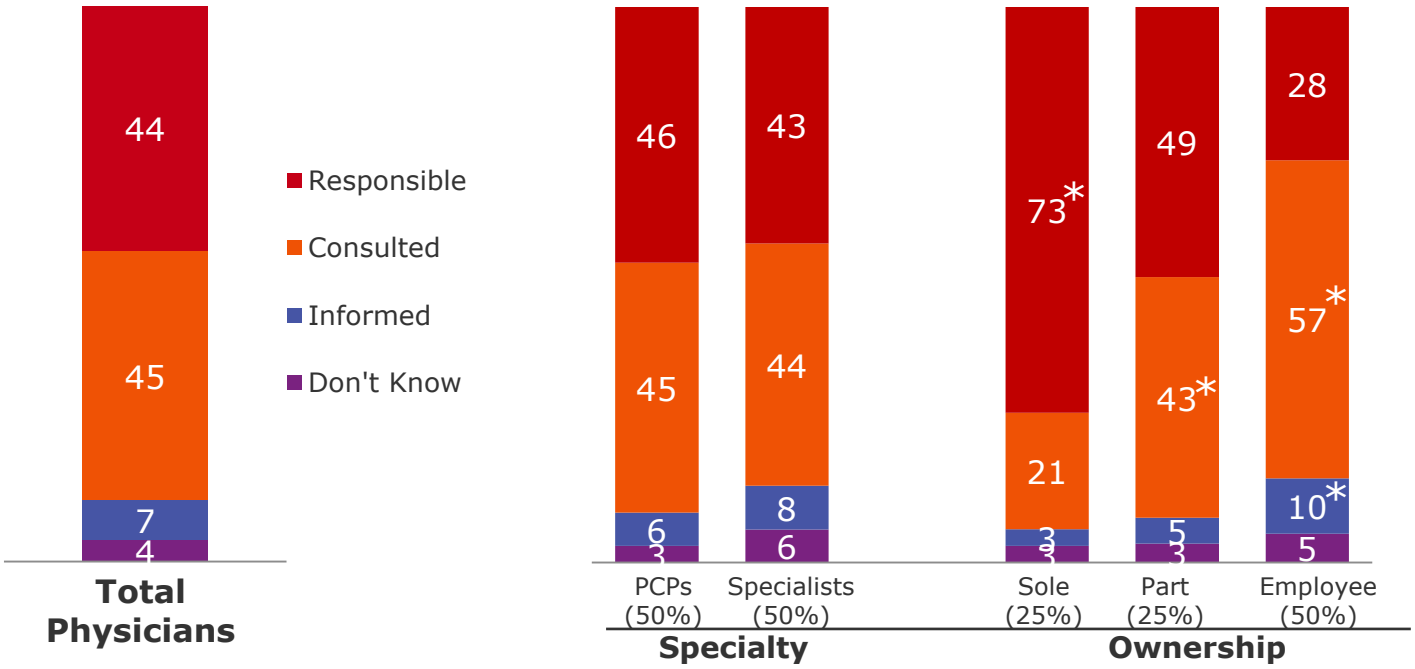
Physicians should be able to be reimbursed for time spent

Tools should be easy to use and as effective as current methods of care.

Q18. How important are each of the attributes below in facilitating the adoption of digital health solutions into your practice?
Base: Total Physicians (n=1300)

Physicians want to be part of the decision making process, but only owners expect to be responsible

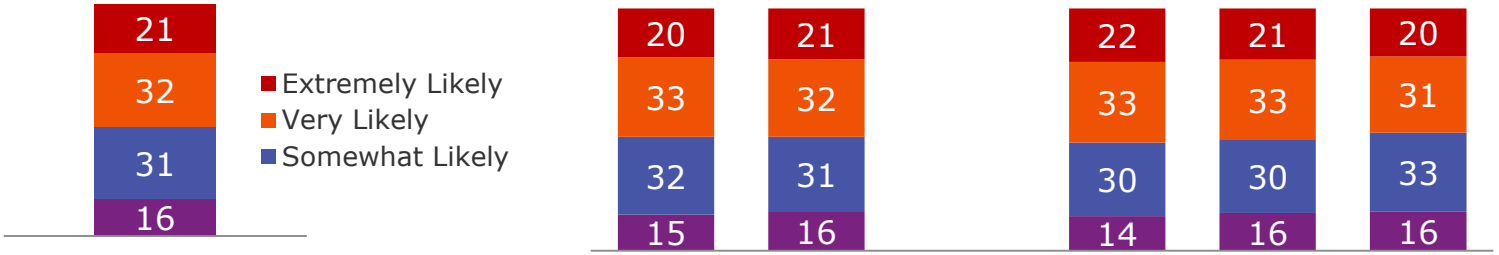
"How involved would you want to be in the adoption of digital health solutions into your practice?"



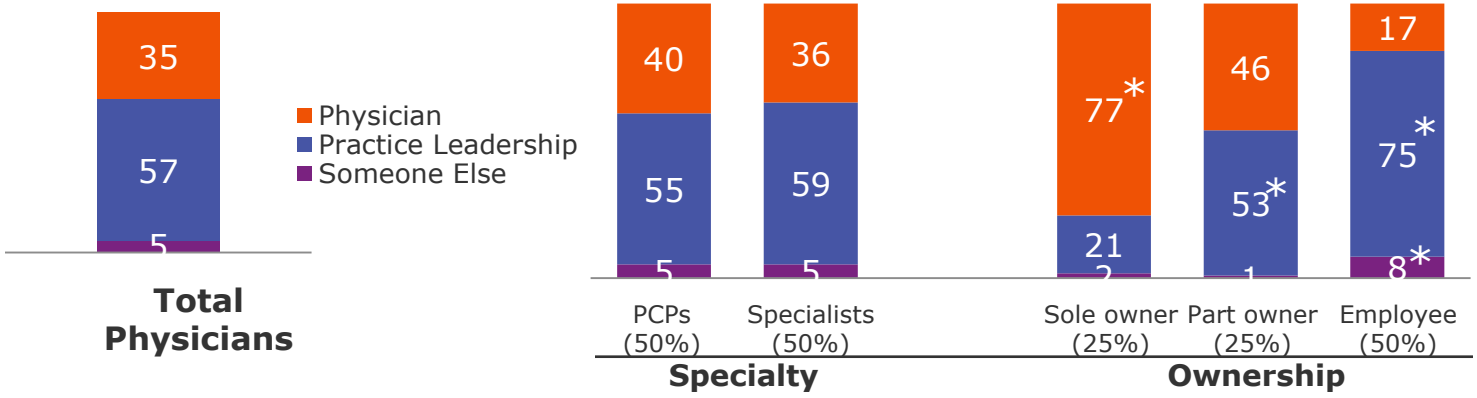
Q40. Ideally, how involved would you want to be in the adoption of digital health solutions into your practice?
Base: Total Physicians (n=1300), PCPs (n=650), Specialists (n=650), Solo owner (n=329), Part owner (n=319), Employee (n=652)
*Statistically significantly difference at 95% confidence interval

Physicians want extended capabilities in their EHRs but look to practice leaders to make buying decisions

Apps that extend your EHR system's capabilities and are securely integrated into the EHR workflow
Likelihood for practice to buy?



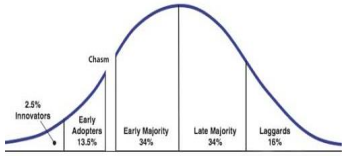
Who will make the buying decision?



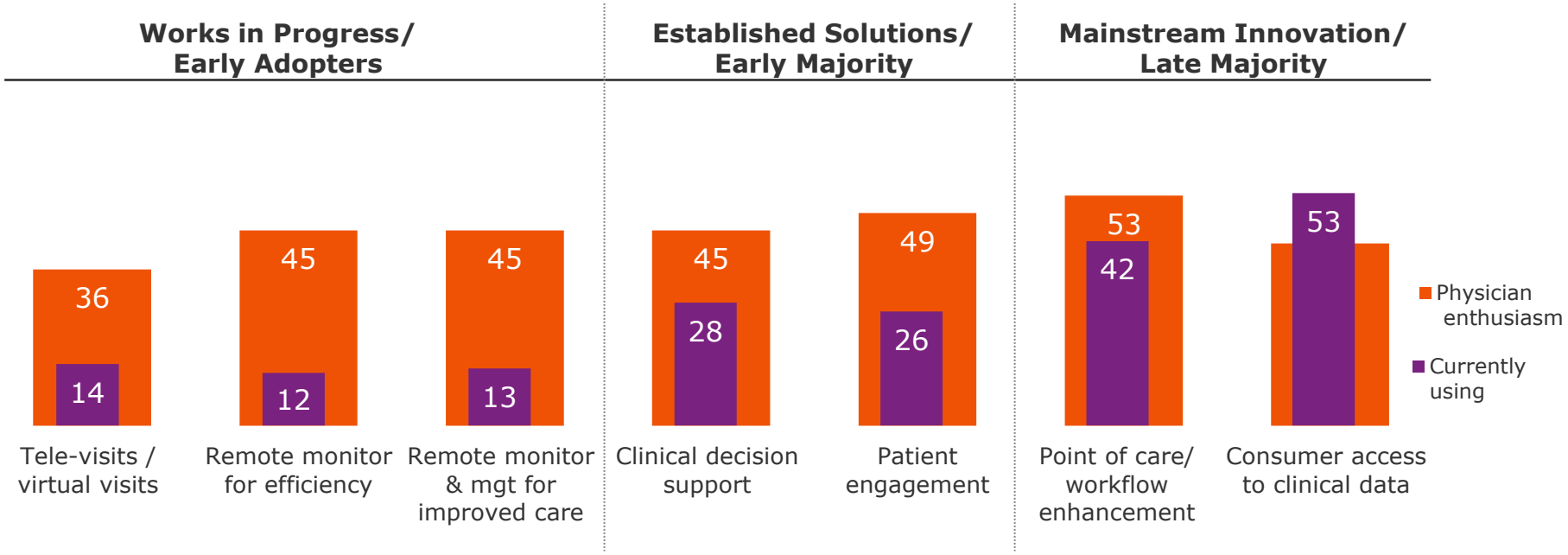
Q33. How likely are you or your practice to purchase apps that extend your EHR system's capabilities and are securely integrated into the EHR workflow?
Q34. If there were an app store for your EHR system...?
Base: Use EHR: Total Physicians (n=1192), PCPs (n=601), Specialists (n=591), Solo owner (n=329), Part owner (n=319), Employee (n=652)
*Statistically significantly difference at 95% confidence interval

4
Physicians’ perceptions of seven digital health tools

- Current use and enthusiasm for specific tools
- Profile of digital users
- Plans for adoption for tools not yet utilized



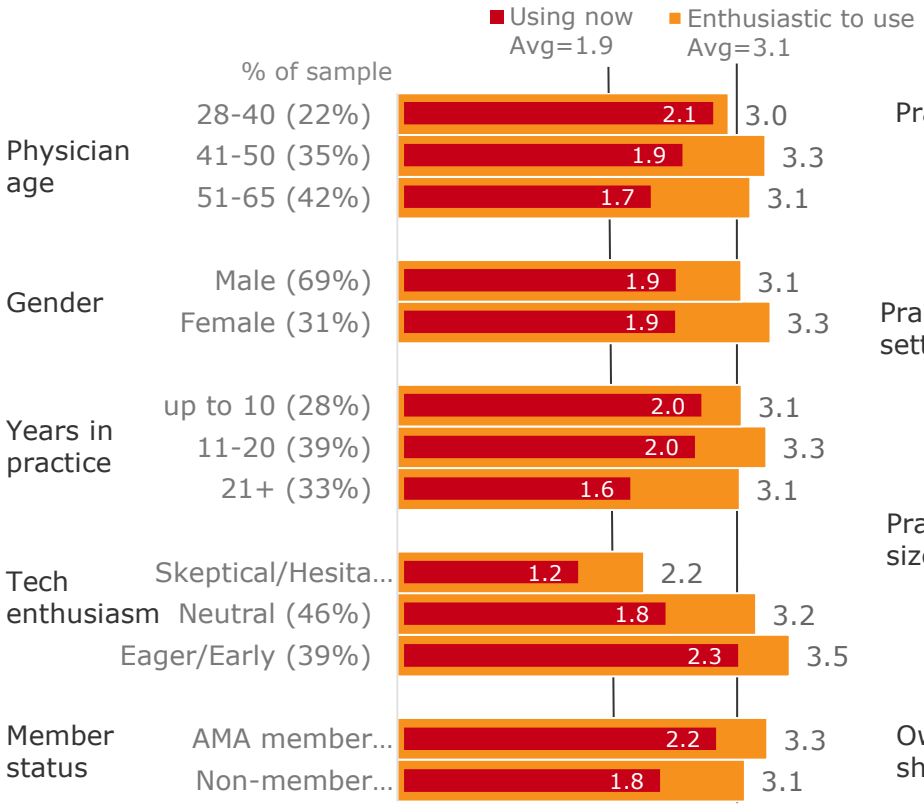
Nearly half of all physicians are enthusiastic about new digital solutions



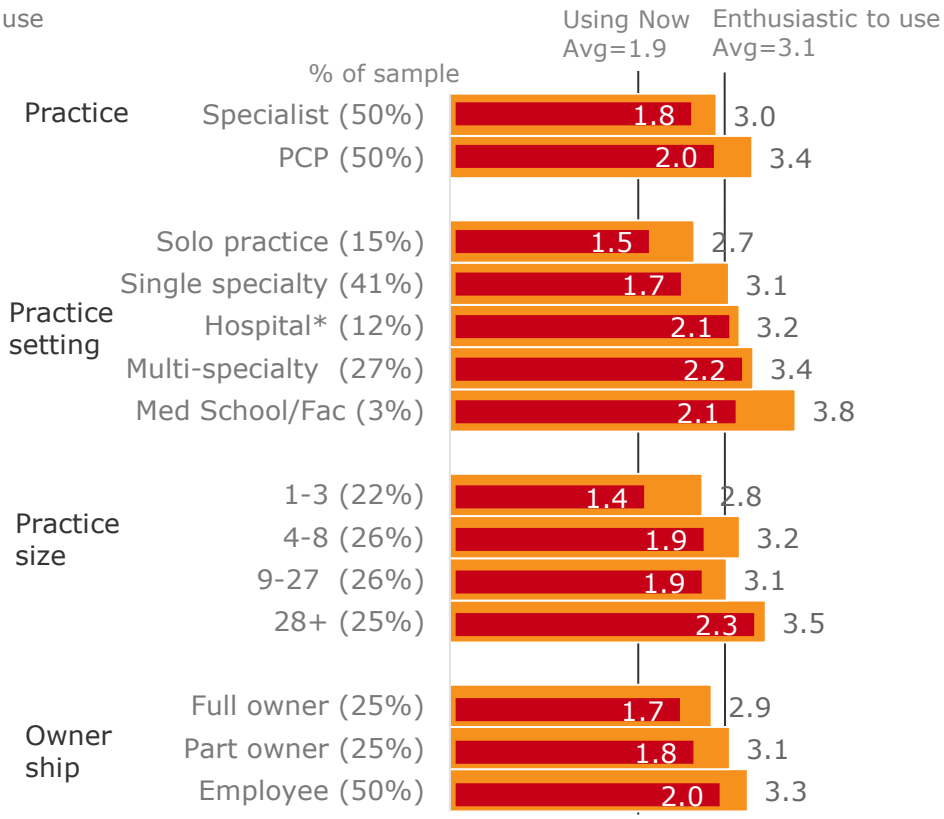
Q20. Which, if any, of these do you currently incorporate into your practice?
Q22. Which, if any, of the solutions below are you enthusiastic about?
Base: Total Physicians (n=1300)
*Descriptions of digital solutions can be found on Slide 9

Digitals tools are used by all types of physicians

Younger physicians are slightly more likely to use more digital tools. Tenure is a small predictor of use but not enthusiasm.

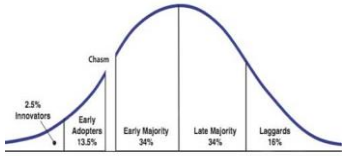


PCPs and those in larger, more complex practice settings use and want to use slightly more digital tools



Q20. Which, if any, of these do you currently incorporate into your practice?
Q22. Which, if any, of the solutions below are you enthusiastic about?
Base: Total Physicians (n=1300)

*Hospital includes Ambulatory Surgery Centers and Urgent Care



Physicians anticipate rapid adoption, minimal disruption from digital tools

Works in Progress/ Early Adopters | **Established Solutions/ Early Majority** | **Mainstream Innovation/ Late Majority**

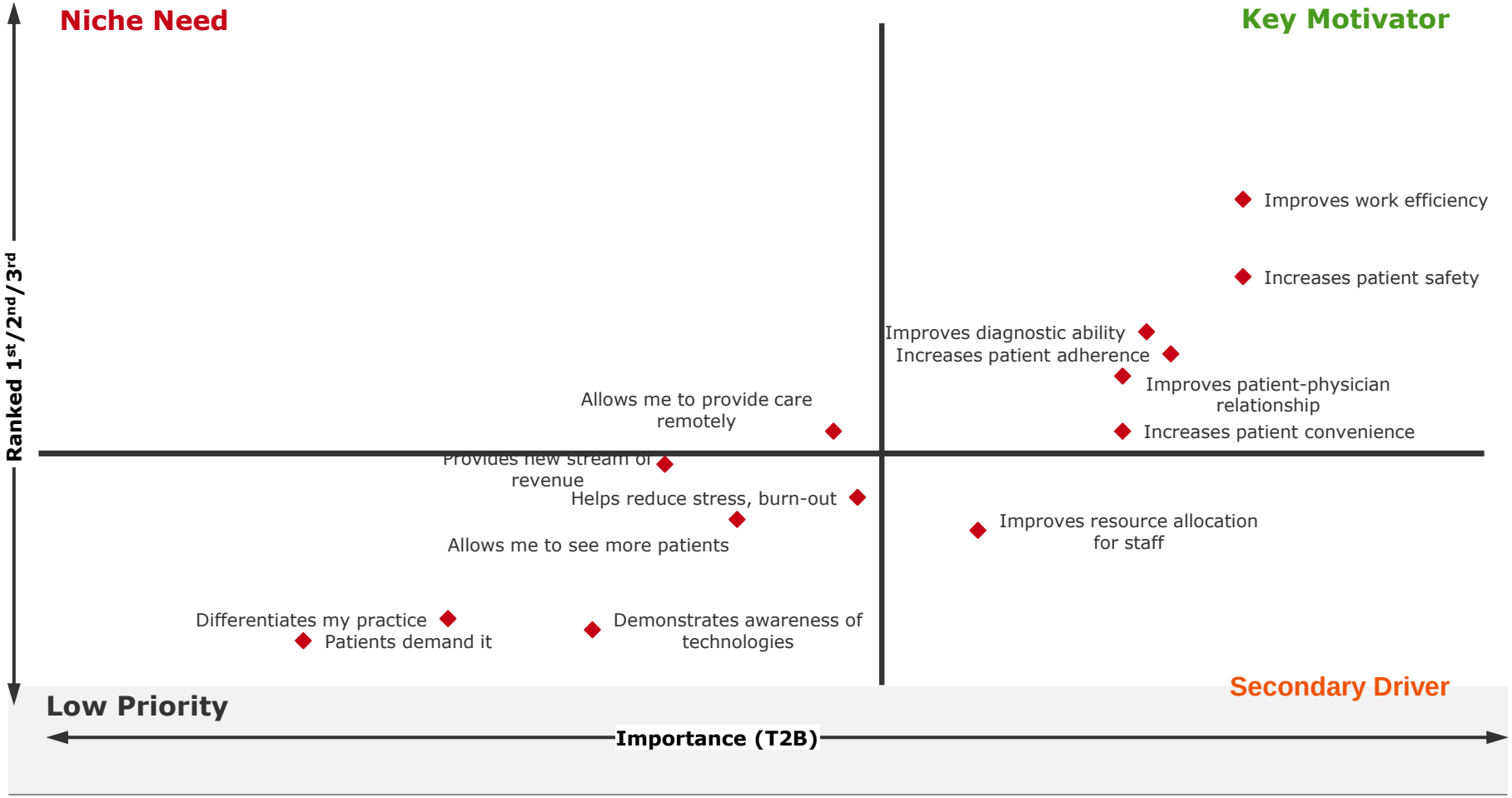
	Tele-visits / virtual visits	Remote monitoring for efficiency	Remote monitoring for improved care	Clinical decision support	Patient Engagement	Point of care / workflow enhancement	Consumer access to clinical data
Beyond a Year	11	15	15	9	10	7	4
Within the Year	14	20	20	17	20	14	8
Already Using	14	12	13	28	26	42	53
Not using, not enthusiastic to use	61	53	53	46	44	37	36

Among those not yet using but classifying the tool as relevant to their practices

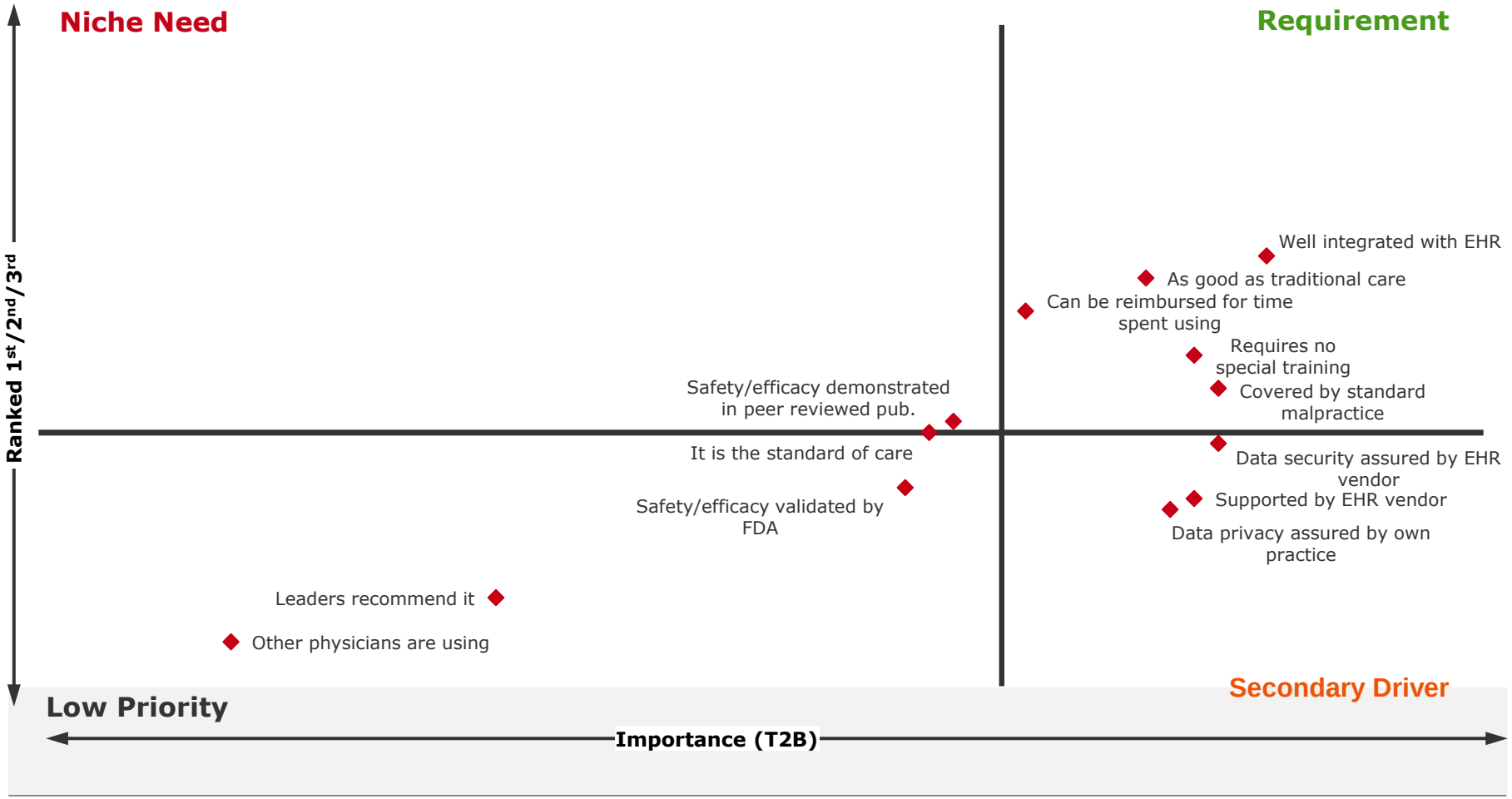
Some disruption, not discouraging	50	38	51	52	53	53	50
No disruption	29	54	34	34	31	35	35
Substantial disruption	21	8	15	14	16	12	15

Q23. When would you expect to start incorporating this solution into your own practice?
Base: Total Physicians,
Q30. This digital health solution would...?
Base: Total Physicians, **Evaluated Solution**: Each solution (n=351)

Elements that attract physicians to digital health overall are consistent across all tools



Likewise, there is consistency in what would be required to adopt specific digital health tools



Thank you

5
Appendix

Key definitions in the study

Digital tools in general

Digital health encompasses a broad scope of tools that engage patients for clinical purposes; collect, organize, interpret and use clinical data; and manage outcomes and other measures of care quality. This includes, but is not limited to, digital solutions involving telemedicine and telehealth, mobile health (mHealth), wearables (e.g., Fitbit), remote monitoring, apps, and others.

Seven specific tools

Remote monitoring for efficiency	Smart versions of common clinical devices such as thermometers, blood pressure cuffs, and scales that automatically record readings in the patient record so you do not have to type it
Remote monitoring and management for improved care	Apps and devices for use by chronic disease patients for daily measurement of vital signs such as weight, blood pressure, blood glucose, etc. Readings are visible to patients and transmitted to the physician's office. Alerts are generated as appropriate for missing or out of range readings
Clinical decision support	Clinical decision support - Modules used in conjunction with the EHR or apps that integrate with the EHR that highlight potentially significant changes in patient data (e.g., gain or loss of weight, change in blood chemistry)
Patient engagement	Solutions to promote patient wellness and active participation in their care for chronic diseases (e.g., adherence to treatment regimens)
Tele-visits/ virtual visits	An audio/video connection used to see patients remotely (i.e., simple acute illness, adjusting therapy, etc.)
Point of care/ workflow enhancement	Communication and sharing of electronic clinical data to consult with specialists, make referrals and/or transitions of care
Consumer access to clinical data	Secure access allowing patients to view clinical information such as routine lab results, receive appointment reminders and treatment prompts, and to ask for prescription refills, appointments and to speak with their physician

EHR app store

Imagine that you could improve or extend the features in your EHR by purchasing apps from an app store that would securely integrate into the EHR workflow. This would be a special app store just for clinicians, not an existing store (i.e., Google Play, iTunes). The apps would add capabilities like improved data visualization, decision support, improved documentation in the patient record and integration with other tools and services.

Details by individual tools

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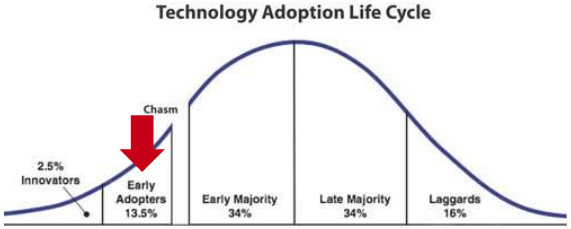
Tele-visits / Virtual Visits

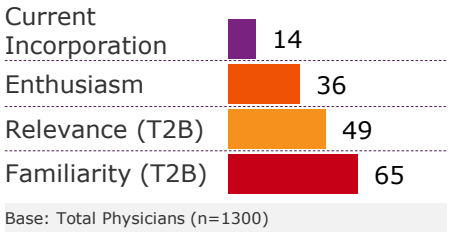
An audio/video connection used to see patients remotely (i.e., simple acute illness, adjusting therapy, etc.)

This tool has not yet cross the chasm of adoption and enthusiasm is not universal. It could improve work efficiency and patient convenience and safety, but would have to be covered by standard liability systems and also allow for easy reimbursement

Evaluation among Total Physicians

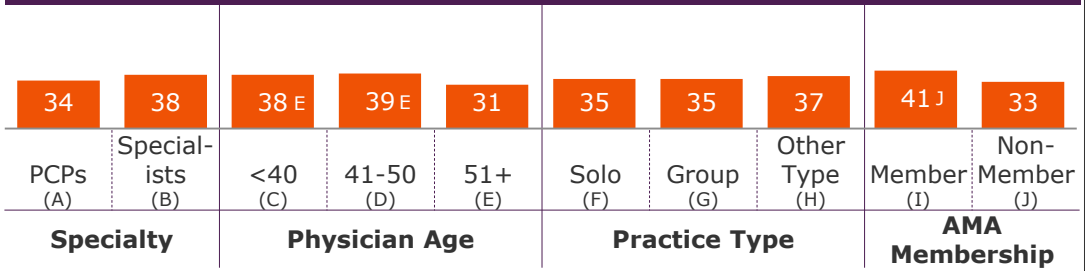
Current State





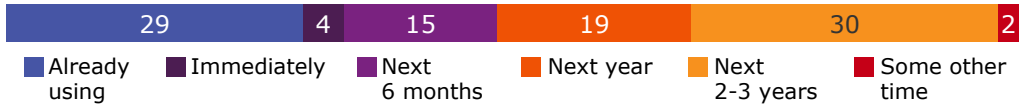
Base: Total Physicians (n=1300)

Enthusiasm



Base: PCP (n=650), Specialist (n=650), Age <40 (n=289), Age 41-50 (n=449), Age 51+ (n=562), Solo Practice (n=196), Group Practice (n=879), Other Practice (n=225)

Timeline of Adoption



Base: Total Physicians, **Excited About Solution**: Tele/Virtual Visits (n=462)

Drivers among Physicians where Tool is Relevant, but Not Yet Used

Most Attractive Elements

Above average importance & ranking

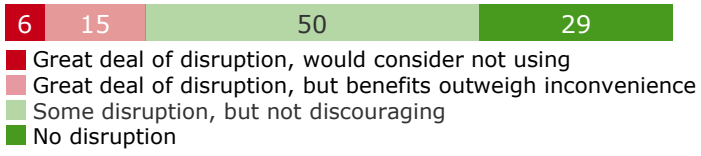
1. Increases patient convenience
2. Improves work efficiency
3. Allows me to provide care remotely
4. Improves patient-doc relationship
5. Increases patient safety
6. Provides a new stream of revenue

Key Functional Requirements

Above average importance & ranking

1. Covered by standard malpractice
2. Can be reimbursed for time spent
3. Requires no special training
4. Well integrated with EHR
5. As good as traditional care

Disruption



Base: **Evaluated Solution:** Total Physicians (n=351)

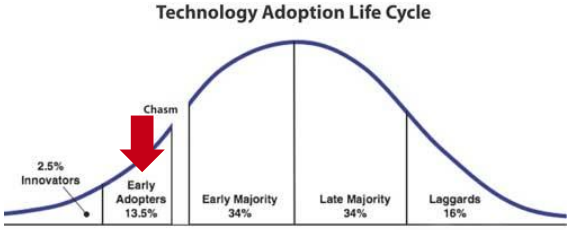
Remote Monitoring for Efficiency

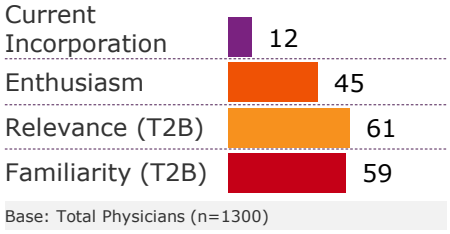
Smart versions of common clinical devices such as thermometers, blood pressure cuffs, and scales that automatically record readings in the patient record so you do not have to type it

This tool has not yet cross the chasm of adoption but there is some enthusiasm, driven by PCPs. It would need to be proven to improve efficiency and diagnostic ability while being well integrated into current data systems

Evaluation among Total Physicians

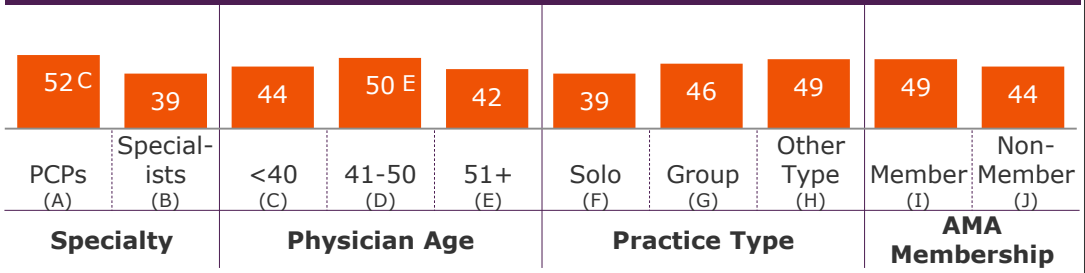
Current State





Base: Total Physicians (n=1300)

Enthusiasm



Base: PCP (n=650), Specialist (n=650), Age <40 (n=289), Age 41-50 (n=449), Age 51+ (n=562), Solo Practice (n=196), Group Practice (n=879), Other Practice (n=225)

Timeline of Adoption

Base: Total Physicians, **Excited About Solution**: Remote Monitoring for Efficiency (n=591)

Drivers among Physicians where Tool is Relevant, but Not Yet Used

Most Attractive Elements

Above average importance & ranking

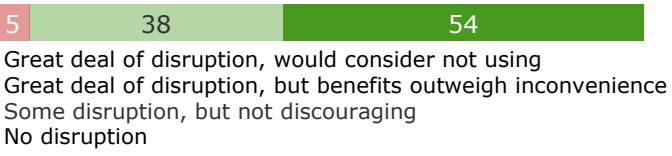
1. Improves work efficiency
2. Improves diagnostic ability
3. Increases patient safety
4. Increases patient convenience
5. Increases patient adherence
6. Improves patient-doc relationship

Key Functional Requirements

Above average importance & ranking

1. Well integrated with EHR
2. Data security assured by EHR vendor
3. As good as traditional care
4. Requires no special training

Disruption



Base: **Evaluated Solution:** Total Physicians (n=351)

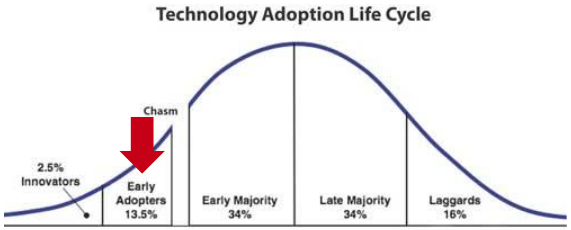
Remote Monitoring & Management for Improved Care

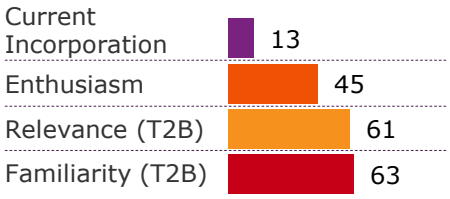
Apps and devices for use by chronic disease patients for daily measurement of vital signs such as weight, blood pressure, blood glucose, etc. Readings are visible to patients and transmitted to the physician's office. Alerts are generated as appropriate for missing or out of range readings

This tool has not yet cross the chasm of adoption but there is some enthusiasm, driven by PCPs. Improved safety and adherence would motivate use, as long as it was easy to adopt and well integrated with current systems

Evaluation among Total Physicians

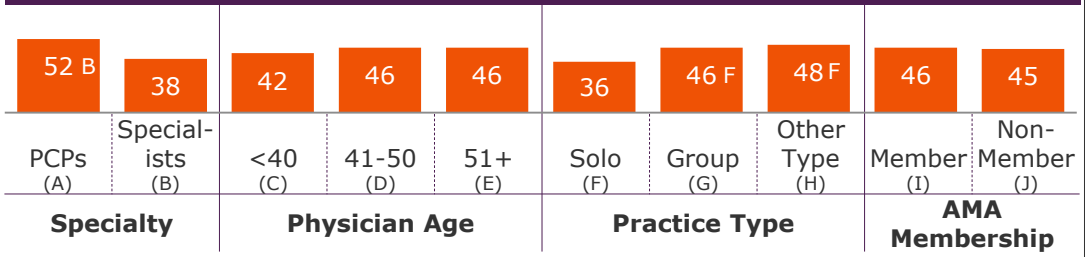
Current State





Base: Total Physicians (n=1300)

Enthusiasm



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Timeline of Adoption

Base: Total Physicians, **Excited About Solution**: Remote Monitoring & Management for Improved Care (n=586)

Drivers among Physicians where Tool is Relevant, but Not Yet Used

Most Attractive Elements

Above average importance & ranking

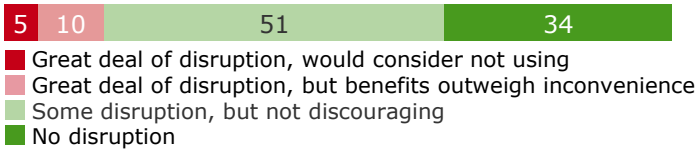
1. Increases patient safety
2. Increases patient adherence
3. Improves diagnostic ability
4. Improves work efficiency
5. Improves patient-doc relationship
6. Allows me to provide care remotely

Key Functional Requirements

Above average importance & ranking

1. Well integrated with EHR
2. Requires no special training
3. As good as traditional care
4. Safety demo'd in peer reviewed pub.

Disruption



Base: **Evaluated Solution:** Total Physicians (n=351)

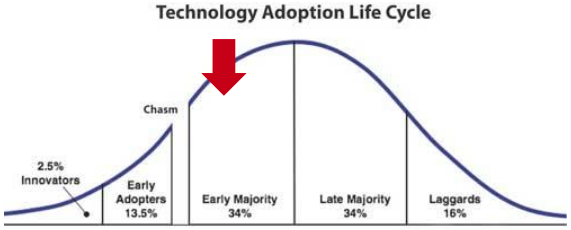
Clinical Decision Support

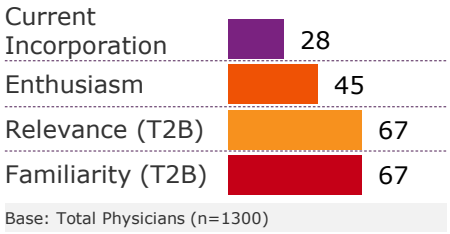
Modules used in conjunction with the EHR or apps that integrate with the EHR that highlight potentially significant changes in patient data (e.g., gain or loss of weight, change in blood chemistry)

This tool is in the early stages of adoption and physicians are moderately enthusiastic. Attractive because it could increase patient safety and improve physicians' current ways of working, the tool would have to work well with current data systems and be easy to use

Evaluation among Total Physicians

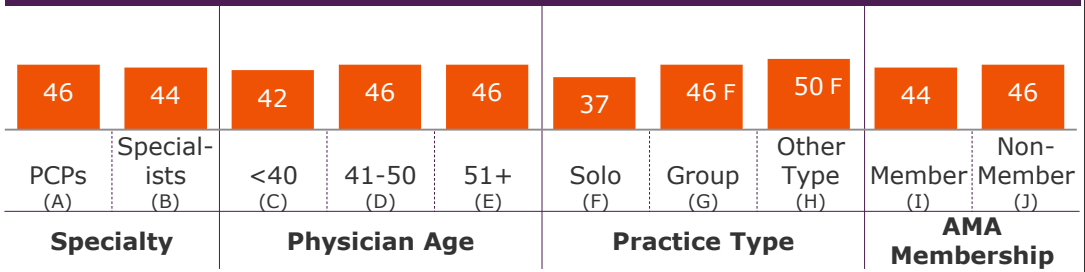
Current State





Base: Total Physicians (n=1300)

Enthusiasm



Base: PCP (n=650), Specialist (n=650), Age <40 (n=289), Age 41-50 (n=449), Age 51+ (n=562), Solo Practice (n=196), Group Practice (n=879), Other Practice (n=225)

Timeline of Adoption

Base: Total Physicians, **Excited About Solution**: Clinical Decision Support (n=588)

Drivers among Physicians where Tool is Relevant, but Not Yet Used

Most Attractive Elements

Above average importance & ranking

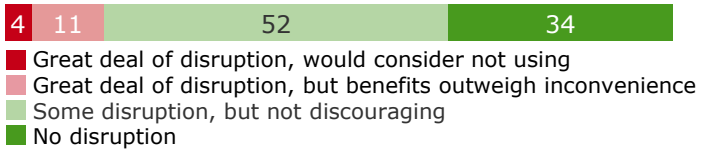
1. Increases patient safety
2. Improves diagnostic ability
3. Improves work efficiency
4. Increases patient adherence
5. Improves patient-doc relationship

Key Functional Requirements

Above average importance & ranking

1. Well integrated with EHR
2. Requires no special training
3. Covered by standard malpractice
4. As good as traditional care

Disruption



Base: **Evaluated Solution:** Total Physicians (n=351)

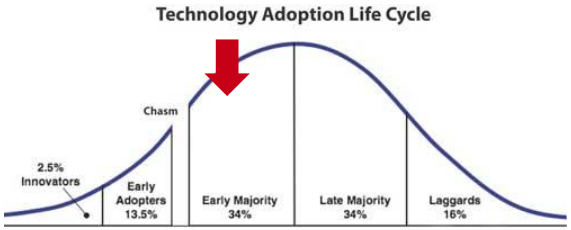
Patient Engagement

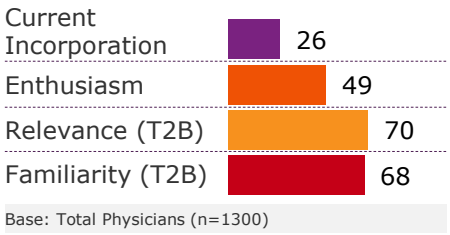
Solutions to promote patient wellness and active participation in their care for chronic diseases (e.g., adherence to treatment regimens)

This tool is in the early stages of adoption and physicians, particularly PCPs and those in Group practice, show some enthusiasm. Physicians would be motivated to use in order to increase patient safety and adherence as well as to improve current ways of working. The tool would have to work well with current data and liability systems and be easy to use

Evaluation among Total Physicians

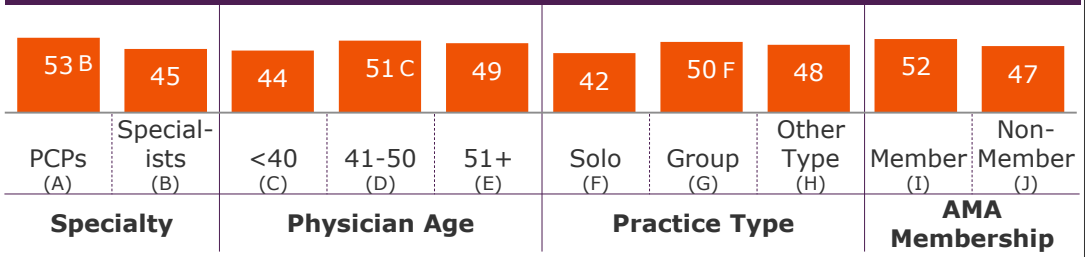
Current State





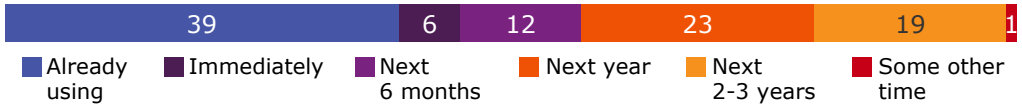
Base: Total Physicians (n=1300)

Enthusiasm



Base: PCP (n=650), Specialist (n=650), Age <40 (n=289), Age 41-50 (n=449), Age 51+ (n=562), Solo Practice (n=196), Group Practice (n=879), Other Practice (n=225)

Timeline of Adoption



Base: Total Physicians, **Excited About Solution**: Patient Engagement (n=632)

Drivers among Physicians where Tool is Relevant, but Not Yet Used

Most Attractive Elements

Above average importance & ranking

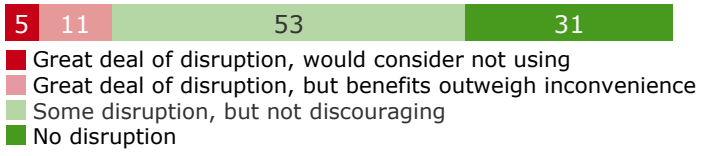
1. Increases patient adherence
2. Increases patient safety
3. Improves work efficiency
4. Improves patient-doc relationship
5. Improves diagnostic ability
6. Increases patient convenience

Key Functional Requirements

Above average importance & ranking

1. Well integrated with EHR
2. Covered by standard malpractice
3. Requires no special training
4. As good as traditional care
5. Can be reimbursed for time spent

Disruption



Base: **Evaluated Solution:** Total Physicians (n=351)

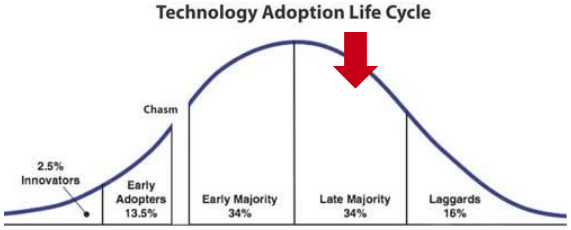
Consumer Access to Clinical Data

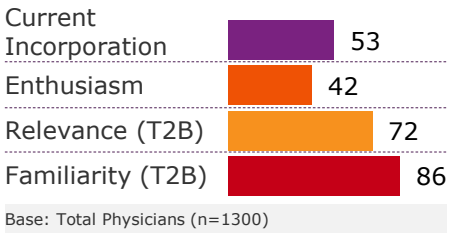
Secure access allowing patients to view clinical information such as routine lab results, receive appointment reminders and treatment prompts, and to ask for prescription refills, appointments and to speak with their physician

This tool has already moved into the later stages of adoption. Enthusiasm may be waning. Increases in patient safety and convenience, along with a more efficient workflow, attract physicians to this tool. Assurances of data security and liability coverage are necessary in order to encourage continued use

Evaluation among Total Physicians

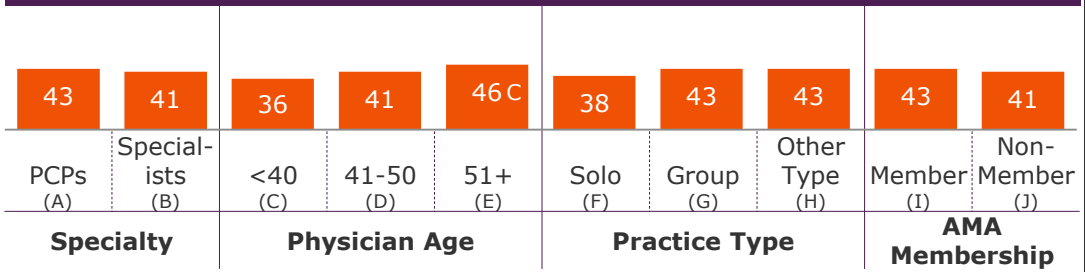
Current State





Base: Total Physicians (n=1300)

Enthusiasm



Base: PCP (n=650), Specialist (n=650), Age <40 (n=289), Age 41-50 (n=449), Age 51+ (n=562), Solo Practice (n=196), Group Practice (n=879), Other Practice (n=225)

Timeline of Adoption

Base: Total Physicians, **Excited About Solution**: Consumer Access to Clinical Data (n=545)

Drivers among Physicians where Tool is Relevant, but Not Yet Used

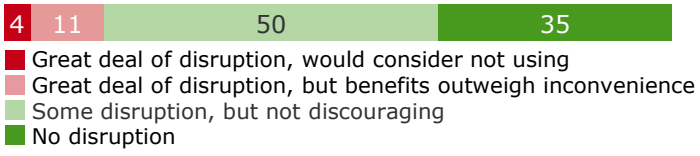
Most Attractive Elements
Above average importance & ranking

1. Increases patient safety
2. Increases patient convenience
3. Improves work efficiency
4. Improves patient-doc relationship
5. Increases patient adherence

Key Functional Requirements
Above average importance & ranking

1. Covered by standard malpractice
2. Data security assured by EHR vendor
3. Requires no special training
4. Well integrated with EHR
5. As good as traditional care
6. Can be reimbursed for time spent

Disruption



Base: **Evaluated Solution:** Total Physicians (n=351)

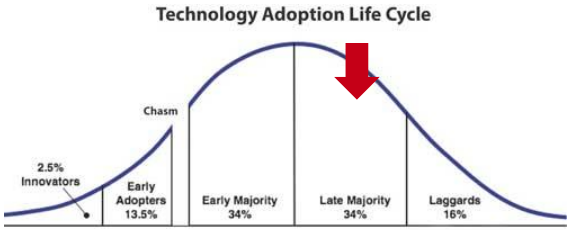
Point-of-care / Workflow Enhancement

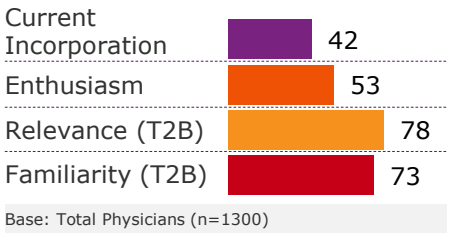
Communication and sharing of electronic clinical data to consult with specialists, make referrals and/or transitions of care

This tool has already moved into the later stages of adoption and enthusiasm remains high, particularly among PCPs. Attractive because it could increase patient safety and improve physicians' current ways of working, the tool must work well with current data and liability systems in order to encourage continued use

Evaluation among Total Physicians

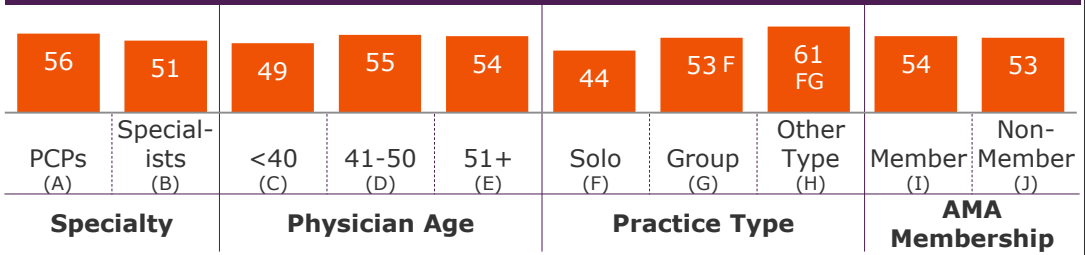
Current State





Base: Total Physicians (n=1300)

Enthusiasm



Base: PCP (n=650), Specialist (n=650), Age <40 (n=289), Age 41-50 (n=449), Age 51+ (n=562), Solo Practice (n=196), Group Practice (n=879), Other Practice (n=225)

Timeline of Adoption

Base: Total Physicians, **Excited About Solution**: Point-of-care / Workflow Enhancement (n=694)

Drivers among Physicians where Tool is Relevant, but Not Yet Used

Most Attractive Elements

Above average importance & ranking

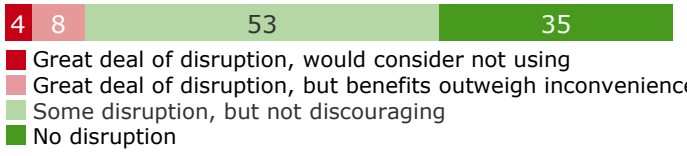
1. Improves work efficiency
2. Increases patient safety
3. Improves diagnostic ability
4. Improves patient-doc relationship
5. Helps reduce stress, burn-out

Key Functional Requirements

Above average importance & ranking

1. Well integrated with EHR
2. Covered by standard malpractice
3. Requires no special training
4. As good as traditional care

Disruption



Base: **Evaluated Solution:** Total Physicians (n=350)