

# The State of Patient Matching in America

A 2019 National Survey



## Introduction and Overview

Over the last decade, hospitals and physician practices have largely moved away from paper medical records to digitized patient information stored in electronic health records (EHRs). Correctly linking patient data across EHR systems remains a significant challenge for health systems, hospitals, offices, and any facility where patients receive care. Health Information Exchanges (HIE) also face challenges with patient matching. Duplicate or mismatched records result in privacy and safety risks, claim denials, redundant medical tests and procedures, and analytical reporting errors. Large-scale hospital mergers and acquisitions further complicate the issue.

Patient matching and identification remain a top priority when it comes to lowering costs, enhancing clinical decision-making, improving patient safety and fostering care coordination—all critical components of value-based care. The purpose of this survey is to provide an up-to-date assessment of the patient matching challenges and opportunities both providers and HIEs face, as well as their attitudes toward possible patient identification solutions.

## Methodology

In order to assess the current state of patient matching in the U.S., eHealth Initiative (eHI), commissioned by NextGate, surveyed leaders at provider and HIE organizations. The 2019 State of Patient Matching Survey was launched on July 19 and closed September 13, 2019. Announcement of the survey was communicated through emails and phone calls to a list of contacts who are in leadership positions at HIEs and provider organizations.

The survey consisted of nearly 20 multiple-choice questions. Each response was reviewed carefully by eHealth Initiative staff. Significantly incomplete responses, duplicates, or responses from organizations not considered an HIE or healthcare provider were excluded. A total of 118 responses were included in the final results. This survey is a non-scientific snapshot of industry perspectives on the state of patient matching.



## Survey Respondents

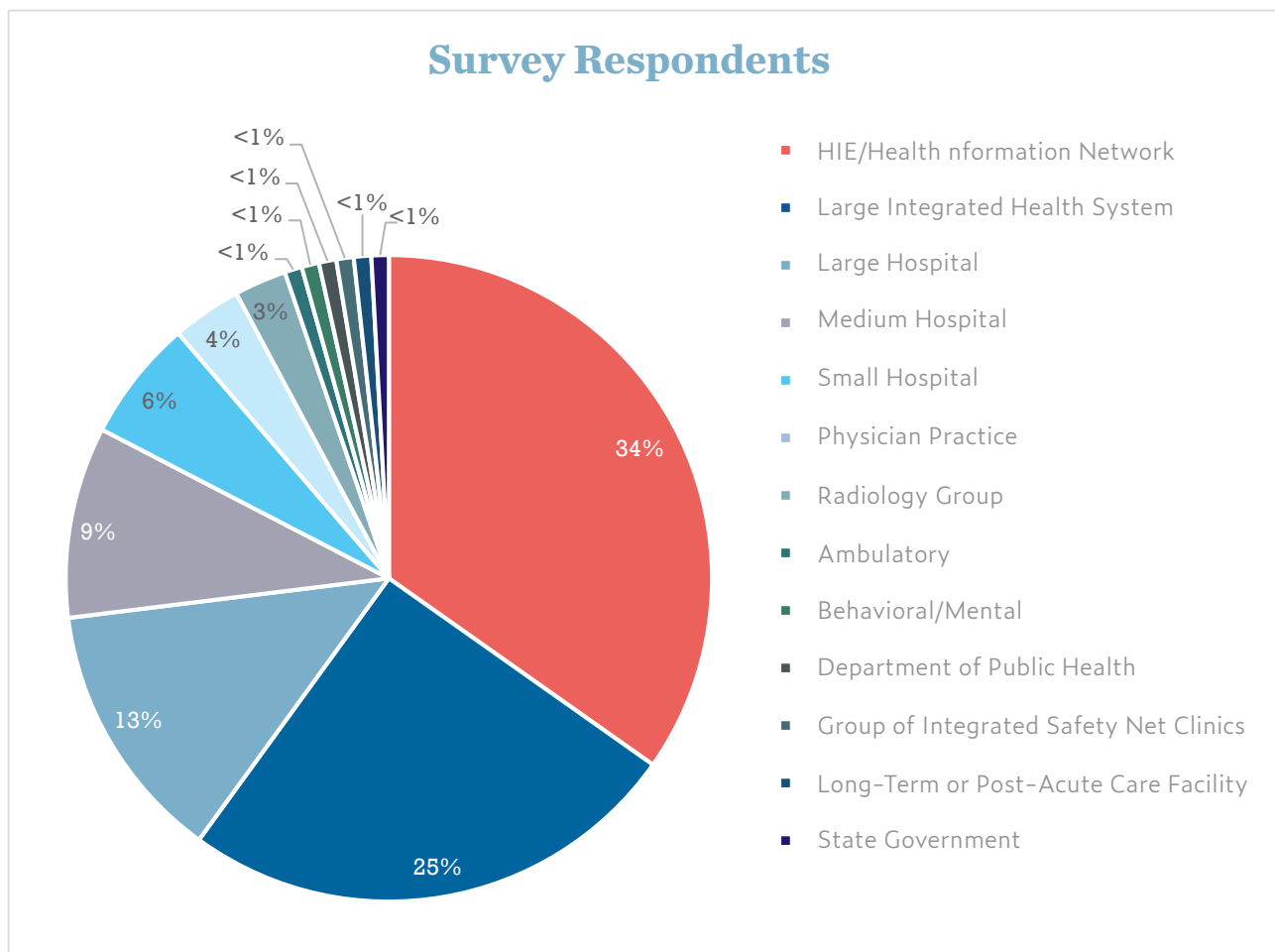
The 118 respondents were largely providers (64%) who came from large integrated health systems; large, medium, and small hospitals; physician practices; radiology groups, long-term or post-acute care facilities; and home health agencies. The overall percentage of respondent organizations was:

- 34% HIEs (40 people)
- 64% providers (75 people)
- 2% other entities (3 people)

## Role in their Organization

Survey respondents were asked how they would classify their role within their organization:

- C-Suite: 36% (42)
- Upper/middle manager 31% (36)
- Director 26% (31)
- Other: 7% (9)



## Key Findings

Approximately 38 percent of U.S. healthcare providers have incurred an adverse event in last two years as the result of a patient matching issue.



Healthcare provider and HIE executives point to data entry errors as the leading cause of their organization's duplicate medical records.

For HIEs, lack of funding and staff are the biggest barriers to improving patient matching while lack of prioritization and technology are the greatest obstacles for providers.

Approximately 70 percent of provider and HIE leaders "completely" or "somewhat" agree that federal funding should be made available to create a national patient identifier.

The majority of HIEs and providers have dedicated employees to resolve potential duplicates and mismatches. These flagged records are often addressed on a daily or weekly basis.

Healthcare provider and HIE executives see data standardization and biometrics as the most promising innovations to impact patient matching efforts nationally.

## Contributors of Poor Patient Matching

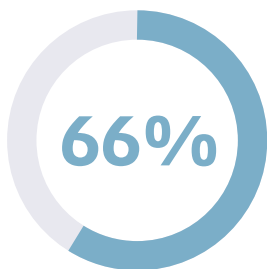
To ensure the availability, safety and integrity of patient medical records, individuals must be correctly identified and consistently matched to their healthcare data. The absence of just a single medication in a patient’s record can greatly impact a decision made by a clinician. Patient identification errors often occur when demographic data about an individual is collected, particularly during registration. However poor system integration, lack of data standardization processes, and inadequate matching algorithms also contribute to duplicate and erroneous records. Individuals move, marry, divorce and visit multiple providers in their community—where new records are created and the potential for patient misidentification grows.

Survey respondents were asked to select the statements they believed contributed to duplicate records at their organization. Among all respondents, 66% rated data entry errors as the greatest contributor, followed by record matching/search terminology (46%), then poor system integration (42%). Among HIEs, data entry errors were also rated as the highest contributor to duplication (70%). The same trend can be seen among providers, with 65% mentioning data entry errors.

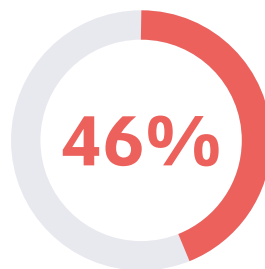
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### BIGGEST CONTRIBUTORS TO DUPLICATE MEDICAL RECORDS

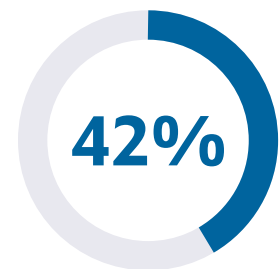
#### DATA ENTRY ERRORS



#### POOR ALGORITHMS



#### LACK OF INTEGRATION



#### ALL RESPONDENTS: (Multiple responses possible)

- Data entry errors: 66% (78)
- Record matching/patient search terminology and/or algorithms: 46% (54)
- Poor system integration/ interoperability: 42% (50)
- Registration staff turnover: 35% (41)
- Lack of industry-wide data standards: 35% (41)

#### HIEs: (Multiple responses possible)

- Data entry errors: 70% (28)
- Record matching/patient search terminology and/or algorithms: 45% (18)
- Lack of industry-wide data standards: 43% (17)
- Lack of resources to correct duplicates: 40% (16)
- Poor system integration/interoperability: 33% (13)

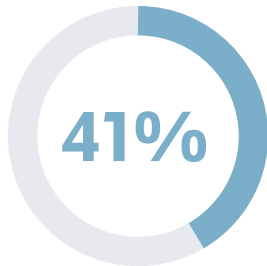
#### PROVIDERS: (Multiple responses possible)

- Data entry errors: 65% (49)
- Poor system integration/interoperability: 47% (35)
- Record matching/patient search terminology and/or algorithms: 47% (35)
- Registration staff turnover: 40% (30)

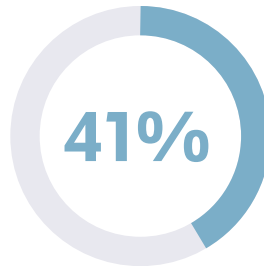
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## BIGGEST BARRIERS TO IMPROVING PATIENT MATCHING RATES

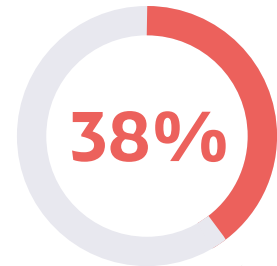
### LACK OF PRIORITIZATION



### LACK OF TECHNOLOGY



### LACK OF DATA GOVERNANCE



Survey respondents could select multiple responses when asked what they believed the biggest barriers were to improving their organization's patient matching. Lack of prioritization (41%) and lack of technology (41%) were the leading answers of all respondents. For HIEs, lack of staff (42%) and lack of funding (34%) were the leading answers. For providers, lack of technology (47%) and lack of prioritization (45%) were the dominant answers. It is worth noting that more providers answered this question than HIEs.

#### All RESPONDENTS: (Multiple responses possible)

- Lack of prioritization (too many other competing priorities): 41% (48)
- Lack of technology: 41% (47)
- Lack of data governance protocols/procedures: 38% (44)
- Lack of staff: 34% (39)
- Lack of funding: 30% (35)

#### HIEs: (Multiple responses possible)

- Lack of staff: 42% (16)
- Lack of funding: 34% (13)
- Lack of data governance protocols/procedures: 32% (12)

#### PROVIDERS: (Multiple responses possible)

- Lack of technology: 47% (35)
- Lack of prioritization (too many other competing priorities): 45% (34)
- Lack of data governance protocols/procedures: 39% (29)

## Measuring and Addressing Duplicates

Respondents were asked what percentage of all stored records at their organization are duplicates. The majority of all respondents (32%) reported 3-10 percent. Among HIEs, 27% of respondents indicated less than 3 percent, however 35% were not sure. For providers, the majority (36%) listed 3-10 percent.

Answer Key	Overall		HIEs		Providers	
Less than 3 percent	29%	33	27%	11	29%	21
3-10 percent	32%	37	23%	9	36%	27
More than 10 but less than 25	11%	13	5%	2	15%	11
25-50 percent	1%	2	0%	0	3%	2
More than 50 percent	8%	9	10%	4	5%	4
Not sure	19%	23	35%	14	12%	9
Totals	100%	117	100%	40	100%	74

*Some respondents did not answer this question.*

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### EMPLOYEES AND/OR CONTRACTORS TO ADDRESS POTENTIAL MISMATCHES

A large majority (80%) of respondents have dedicated employees or contractors to resolve potential duplicates and mismatches.

#### YES

Overall



HIEs

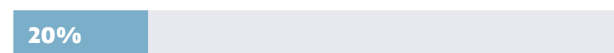


Providers

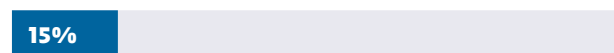


#### NO

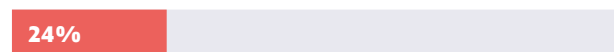
Overall



HIEs



Providers



### HOW MANY EMPLOYEES AND/OR CONTRACTORS ARE EMPLOYED TO ADDRESS POTENTIAL MISMATCHES?

Nearly half of all survey respondents (46%) have 1–3 dedicated employees managing record mismatches, including an overwhelming majority of HIEs (76%). Among providers, staffing for managing duplicates varied, likely due to variations in the size of their institutions.

Answer Key	Overall		HIEs		Providers	
Zero	1%	1	3%	1	0%	0
1-3	46%	43	76%	26	28%	16
4-6	14%	13	9%	3	16%	9
7-10	7%	7	0%	0	13%	7
11-13	9%	8	0%	0	14%	8
14-16	4%	4	3%	1	5%	3
17-20	3%	3	0%	0	5%	3
21-25	0%	0	0%	0	0%	0
Over 25	3%	3	0%	0	5%	3
Not sure	13%	12	9%	3	14%	8

*Some respondents did not answer this question.*

### HOW OFTEN DO THESE EMPLOYEES AND/OR CONTRACTORS ADDRESS POTENTIAL MISMATCHES?

Respondents were asked how often employees and contractors address potential mismatches. Overall, daily (54%) was the most common response. This trend is similar among the other categories as well.

Tackling Duplicates	Overall		HIEs		Providers	
Daily	54%	51	47%	16	56%	32
Weekly	25%	23	29%	10	23%	13
Bi-weekly	1%	1	0%	0	2%	1
Monthly	9%	8	9%	3	8%	4
Less often than monthly	2%	2	3%	1	1%	1
Not sure	7%	7	6%	2	9%	5
Other	2%	2	6%	2	1%	1

*Some respondents did not answer this question.*



## Quality Assurance and Patient Safety

Hospital and provider groups were asked about adverse events related to poor patient matching. Providers were also asked about quality assurance protocols surrounding patient registration.

### HAS YOUR ORGANIZATION INCURRED AN ADVERSE EVENT DUE TO A PATIENT MATCHING ISSUE IN LAST TWO YEARS?

Yes

38%

No

38%

Not Sure

24%

### DO YOU HAVE A QUALITY ASSURANCE STEP DURING OR POST-PATIENT REGISTRATION THAT IDENTIFIES DISCREPANCIES AND DEMOGRAPHIC AND INSURANCE ERRORS?

Yes

67%

No

15%

Not Sure

18%

### SELECT A CATEGORY INDICATING THE ROLE OF PATIENT MATCHING QUALITY METRICS IN YOUR ORGANIZATIONS

Answer Key	Overall	HIEs	Providers
We have not considered the use of patient matching quality metrics	11% 13	5% 2	14% 10
We have started planning for the future capture of quality metrics	21% 25	21% 8	23% 17
Quality metrics are in place with data definitions for each metric	24% 28	18% 7	28% 21
We are using metrics to actively improve	15% 17	28% 11	7% 5
We are refining our metrics and are including feedback loops to the systems and organizations, internal and external, involved in patient identity management	14% 16	15% 6	12% 9
Not sure	15% 17	13% 5	16% 12
Totals	100% 116	100% 39	100% 74

## Patient Matching and EHRs

The issue of poor patient identification and duplicate records has grown increasingly complex as more data is generated and more applications are introduced into the healthcare environment. Among HIEs, 38% stated they currently have 31 or more EHR and information systems in their IT environment. Over half of providers (52%) are running an average of 1-5 EHR and IS systems, while 24% are running 6-10 (24%) and 19% are running 11-20 systems.

### HOW MANY EHR AND INFORMATION SYSTEMS CURRENTLY EXIST IN YOUR IT ENVIRONMENT?

# of Systems	Overall		HIEs		Providers	
Zero	1%	1	3%	1	0%	0
1-5	44%	52	30%	12	52%	39
6-10	18%	21	5%	2	24%	18
11-20	19%	22	20%	8	18%	13
21-30	2%	3	5%	2	1%	1
31 or more	15%	18	37%	15	4%	3
Not sure	1%	1	0%	0	1%	1
Totals	100%	118	100%	40	100%	75

### ON AVERAGE, WHAT PERCENTAGE OF YOUR MPI'S TOTAL PATIENT POPULATION IS YOUR 'POTENTIAL MATCH BACKLOG?'

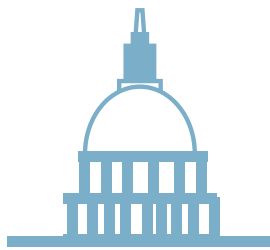
Respondents were asked about the percentage of their EHR's MPI potential match backlog, i.e. the potential patient record matches NOT matched through an MPI's algorithm. While the majority of respondents were unsure (28%), 3-10 percent was the second leading answer (24%) overall.

Answer Key	Overall		HIEs		Providers	
Less than 3 percent	20%	24	23%	9	20%	15
3-10 percent	24%	28	25%	10	24%	18
More than 10 but less than 25	14%	16	10%	4	15%	11
25-50 percent	10%	12	3%	1	13%	10
More than 50 percent	4%	5	8%	3	3%	2
Not sure	28%	33	33%	13	25%	19
Totals	100%	118	100%	40	100%	75

## Attitudes surrounding national patient identifiers

When asked if a nationwide patient matching strategy should be organized by the federal government, most respondents (70%) expressed some degree of support. The majority overall (39%) agreed somewhat, followed by 31% in full support. Neutrality was the lowest among HIEs.

### SHOULD A NATIONWIDE PATIENT MATCHING STRATEGY BE IMPLEMENTED?



Agree Completely



Agree Somewhat



Disagree Completely



Disagree Somewhat

Answer	Overall		HIEs		Providers	
Disagree completely	4%	5	10%	4	1%	1
Disagree somewhat	11%	13	10%	4	12%	9
Neither agree nor disagree	15%	18	8%	3	19%	14
Agree somewhat	39%	46	42%	17	39%	29
Agree completely	31%	36	30%	12	29%	22

### SHOULD FEDERAL FUNDING BE MADE AVAILABLE TO CREATE A U.S. PATIENT IDENTIFIER?

When asked if federal funding should be made available to create a national patient identifier, the majority of all respondents (70%) expressed some level of support. Overall, 39% agreed completely—representing nearly half of HIEs (47%) and 34% of providers.

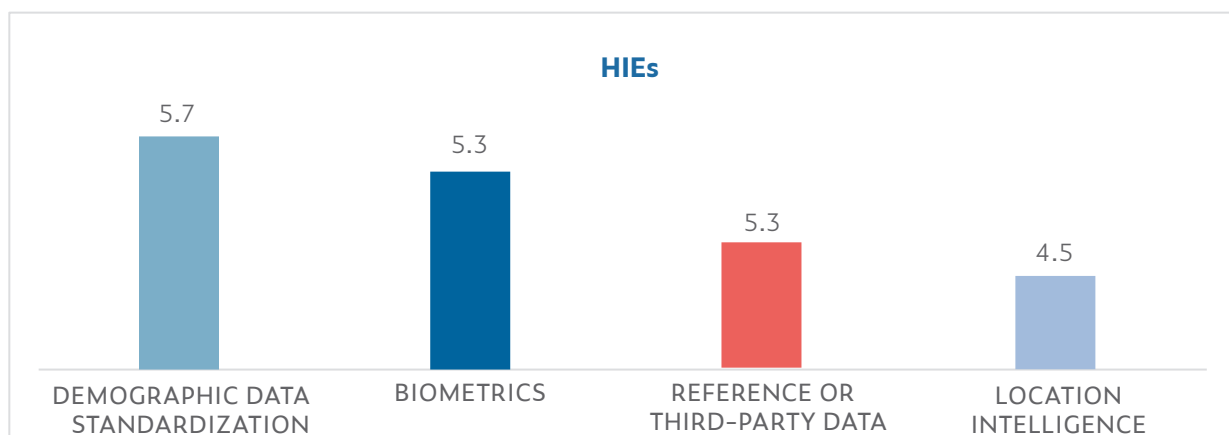
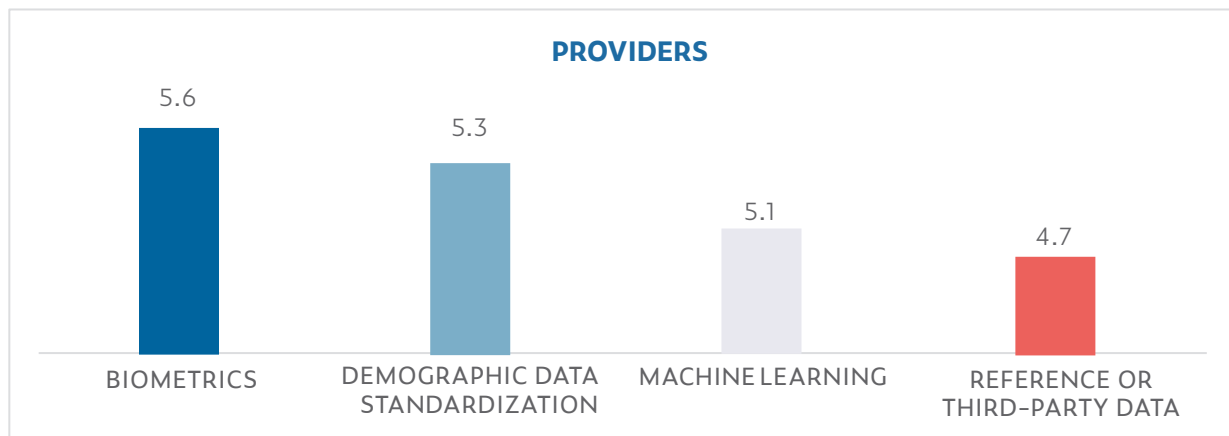
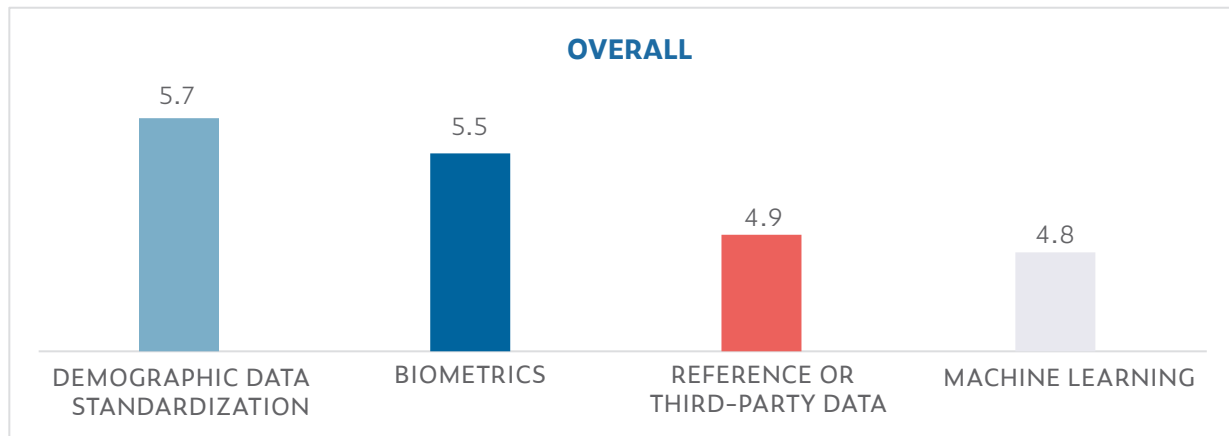
Answer	Overall		HIEs		Providers	
Disagree completely	5%	6	10%	4	3%	2
Disagree somewhat	9%	11	10%	4	8%	6
Neither agree nor disagree	14%	16	5%	2	19%	14
Agree somewhat	31%	36	28%	11	33%	25
Agree completely	39%	47	47%	19	34%	26
Not sure	2%	2	0%	0	3%	2

## Future Direction and Innovations in Patient Matching

On a 1-8 scale (8 being most important), provider and HIE leaders were asked to rate various innovations they believed would impact patient matching efforts the most. Overall, demographic data standardization (5.7) and biometrics (5.5) ranked highest, followed by third-party data (4.9) and machine learning (4.8). Other innovations such as blockchain (4.0), smart cards (4.0), location intelligence (4.0) and smartphone-based approaches (3.5) were also identified. Among providers, biometrics (5.6) was cited as the most promising path forward.

### INNOVATIONS MOST LIKELY TO IMPACT PATIENT MATCHING EFFORTS

Measured importance on a 1-8 scale, with 8 being the highest.



## About eHealth Initiative

eHealth Initiative and Foundation (eHI) convenes executives from every stakeholder group in healthcare to discuss, identify and share best practices to transform the delivery of healthcare using technology and innovation. eHI, and its coalition of members, focus on education, research, and advocacy to promote the use of sharing data to improve health care. Our vision is to harmonize new technology and care models in a way that improves population health, consumer experiences and lowers costs. eHI serves as a clearinghouse and has become the go-to resource for the industry through its eHealth Resource Center. For more information, visit [www.ehidc.org](http://www.ehidc.org).

## About NextGate

With over 200 customers in four countries, NextGate is the global leader in healthcare enterprise identification. Committed to helping organizations overcome the clinical, operational and financial challenges that result from duplicate records and disparate data, our full suite of identity matching solutions connects the entire healthcare ecosystem to drive critical improvements in quality, efficiency and safety. NextGate's market-leading EMPI currently manages 300 million lives and is deployed by the nation's most successful healthcare systems and health information exchanges. For more information, visit [www.nextgate.com](http://www.nextgate.com).