

Pharmacogenomics Readiness in Minnesota Healthcare Systems

Results of a Survey Conducted August 21-September 5, 2018

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**MINNESOTA PRECISION
MEDICINE COLLABORATIVE**

Survey Details

- **Survey of pharmacists-in-charge at health systems in Minnesota**
- **Survey length: 23 questions**
- **113 participants invited via email to complete the survey**
- **30 responses received (26.6%)**
- **50% of respondents were from a large, vertically integrated, multi-hospital health system with at least one hospital having more than 250 beds**
- **Responses collected between August 21 and September 5, 2018**



Main Findings

- 63% of those surveyed do not have, or have not yet launched, a PGx program in their health system.
- ~52% don't believe their pharmacy team or their health system has the knowledge needed to implement or maintain a PGx program.
- 67% expect that their organization will increase its use of PGx testing services over the next three years.
- 92% believe that patients served by their health system would benefit from application or increased application of PGx.
- 96% expect it would be moderately or very difficult to develop PGx services in their health system.
- At least 70% of respondents rank insurance reimbursement, patient out-of-pocket costs, clinical decision support systems, clinical expertise and integration into EMR as either moderate, significant or extreme barriers to PGx implementation.
- The two factors identified as most critical to implementing or expanding PGx services were a business plan and PGx education of clinicians.



1 – Please indicate the location/setting in which you manage pharmacy services.

Answer	%	Count
Urban (Minneapolis/St. Paul)	21.4%	6
Outstate city (Duluth, Rochester, or St. Cloud)	7.1%	2
Rural (outside of the cities listed)	60.7%	17
I am responsible for managing pharmacy services in locations that span urban, outstate city, or rural communities.	10.7%	3
Total	100%	28



2 – Has your organization implemented a pharmacogenomics program?

Answer	%	Count
Yes, a pharmacy-led program	25.9%	7
Yes, a medicine- or genetic counseling-led program	11.1%	3
No program	48.1%	13
Currently developing a program but not yet launched	14.8%	4
Total	100%	27



3 – Is there currently an influential person(s) in your health system who strongly promotes the application of pharmacogenomics to clinical service delivery?

Answer	%	Count
Yes	55.6%	15
No	37.0%	10
Don't know	7.4%	2
Total	100%	27



4 – Does your health system use pharmacogenomic testing in clinical practice?

Answer	%	Count
Yes	63.0%	17
No	25.9%	7
Don't know	11.1%	3
Total	100%	27



5 – Approximately how many pharmacogenomic tests does your health system order per year?

Answer	%	Count
Fewer than 10	0.0%	0
11 to 50	17.6%	3
51-99	11.8%	2
100 or more	29.4%	5
I don't know	41.2%	7
Total	100%	17



6 – The pharmacy team in our organization has the knowledge needed to implement or maintain a pharmacogenomics program.

Answer	%	Count
Strongly agree	11.1%	3
Somewhat agree	37.0%	10
Neither agree nor disagree	22.2%	6
Somewhat disagree	14.8%	4
Strongly disagree	14.8%	4
Total	100%	27



7 – My health system has the knowledge and skills needed to implement or maintain a pharmacogenomics program.

Answer	%	Count
Strongly agree	14.8%	4
Somewhat agree	33.3%	9
Neither agree nor disagree	22.2%	6
Somewhat disagree	14.8%	4
Strongly disagree	14.8%	4
Total	100%	27



8 – What specific resources does your health system have available to support the implementation and management of a pharmacogenomics program? (Select all that apply.)

Answer	%	Count
Access to genetic/pharmacogenomic lab testing	17.3%	19
Access to pharmacogenomic consultants or experts	10.9%	12
Available time of pharmacists to contribute to program development	14.5%	16
Clinical training for staff	13.6%	15
Commitment of organizational leadership	10.9%	12
Commitment of pharmacy staff	16.4%	18
Decision support system for pharmacogenomics in the EMR	8.2%	9
Fiscal investment in program development	6.4%	7
Other	1.8%	2



9 – I expect that my organization will increase its use of pharmacogenomic testing services over the next three years.

Answer	%	Count
Strongly agree	51.9%	14
Somewhat agree	14.8%	4
Neither agree nor disagree	25.9%	7
Somewhat disagree	3.7%	1
Strongly disagree	3.7%	1
Total	100%	27



10 – A patient's genetic profile may influence his or her response to medication therapy.

Answer	%	Count
Yes	100.0%	27
No	0.0%	0
Total	100%	27



11 – I believe that the patients served by my health system would benefit from application or increased application of pharmacogenomic information in our clinical services.

Answer	Percentage	Count
Strongly agree	50.0%	13
Somewhat agree	42.3%	11
Neither agree nor disagree	3.8%	1
Somewhat disagree	3.8%	1
Strongly disagree	0.0%	0
Total	100%	26



12 – How difficult do you think it would be, or how difficult was it, to develop a pharmacogenomics service in your health system?

Answer	%	Count
Not difficult	4.0%	1
Moderately difficult	80.0%	20
Very difficult	16.0%	4
Not possible	0.0%	0
Total	100%	25



13 – It is feasible for our pharmacy leadership team to implement a pharmacogenomics service with resources currently available in our health system.

Answer	%	Count
Strongly agree	12.0%	3
Somewhat agree	20.0%	5
Neither agree nor disagree	12.0%	3
Somewhat disagree	28.0%	7
Strongly disagree	16.0%	4
Pharmacogenomic services are already developed	12.0%	3
Total	100%	25



14 – Executive leaders of my health system believe integration of pharmacogenomic services represents an important clinical program advancement for the organization's service portfolio.

Answer	%	Count
Strongly agree	26.9%	7
Somewhat agree	23.1%	6
Neither agree nor disagree	38.5%	10
Somewhat disagree	3.8%	1
Strongly disagree	7.7%	2
Total	100%	26



15 – Executive leaders of my health system believe that a pharmacogenomics service is an important strategy for meeting the organization’s strategic goals.

Answer	%	Count
Strongly agree	23.1%	6
Somewhat agree	23.1%	6
Neither agree nor disagree	38.5%	10
Somewhat disagree	11.5%	3
Strongly disagree	3.8%	1
Total	100%	26



16 – Executive leaders of my health system communicate that integration of pharmacogenomics into the organization's clinical programs is a priority for the organization.

Answer	%	Count
Strongly agree	15.4%	4
Somewhat agree	15.4%	4
Neither agree nor disagree	23.1%	6
Somewhat disagree	30.8%	8
Strongly disagree	15.4%	4
Total	100%	26



17 – If a pharmacogenomics certificate or MS degree in pharmacogenomics were to be offered by the University of Minnesota, which would be a useful option for you or your staff? (Select all that apply.)

Answer	%	Count
Online self training certificate	50.0%	20
A combination of online and live training certificate	42.5%	17
Pharmacogenomic Master's degree	5.0%	2
None of these	2.5%	1



18 – If pharmacogenomic training for pharmacists would be useful, what kind of training would be most suitable to your health system?

Answer	%	Count
Intensive training over 1-2 weekends in a classroom	8.0%	2
Intensive training over 1-2 weekends via live ITV	12.0%	3
Training spread over several weeks via online	68.0%	17
Training spread over several weeks via live ITV	12.0%	3
None of the above	0.0%	0
Total	100%	25



19 – Please rank the following items with respect to how critical you anticipate each would be in supporting implementation or expansion of pharmacogenomic services in your organization. (1 = most critical, 8 = least critical)

	1	2	3	4	5	6	7	8
Developing a business plan for pharmacogenomic services	41.7%	25.0%	16.7%	4.2%	4.2%	8.3%	0.0%	0.0%
Pharmacogenomic education for pharmacists, physicians, and others	29.2%	12.5%	20.8%	29.2%	4.2%	0.0%	4.2%	0.0%
Building a pharmacogenomics pharmacy service	8.3%	8.3%	33.3%	20.8%	8.3%	20.8%	0.00%	0.0%
Access to a community of practitioners engaged in pharmacogenomics service delivery	8.3%	8.3%	8.3%	4.2%	25.0%	12.5%	12.5%	20.8%
Identifying a pharmacogenomic testing laboratory	8.3%	4.2%	0.0%	16.7%	29.2%	8.3%	12.5%	20.8%
Creating a pharmacogenomic decision support system for electronic medical record	4.2%	16.7%	8.3%	20.8%	8.3%	16.7%	16.7%	8.3%
Billing for pharmacogenomic services	0.0%	25.0%	8.3%	0.0%	20.8%	12.5%	33.3%	0.0%
Developing marketing strategies targeted to patients	0.0%	0.0%	4.2%	4.2%	0.0%	20.83	20.8%	50.0%



20 – Rate the following potential barriers to use of pharmacogenomics at your health system:

Question	None or insignificant barriers	Minimal barriers	Moderate barriers	Significant barriers	Extreme barriers
Insurance reimbursement	0.0%	8.3%	37.5%	37.5%	16.7%
Patient out-of-pocket costs	0.0%	8.3%	33.3%	33.3%	25.0%
A clinical decision support system for pharmacogenomics	8.3%	16.7%	41.7%	29.2%	4.2%
Expertise needed to implement a program within my health system	8.3%	20.8%	37.5%	29.2%	4.2%
Integration of pharmacogenomic results into electronic medical record	4.2%	29.2%	54.2%	8.3%	4.2%
Application of results to my health system's patient population	8.3%	54.2%	33.3%	4.2%	0.0%



21 – Which of the following best describes the health care organization in which your pharmacy department is located?

Answer	%	Count
A large, vertically integrated, multi-hospital health system with at least one hospital having more than 250 beds.	50.0%	14
A single hospital having more than 250 beds, with owned or affiliated outpatient clinics (primary and specialty care).	0.0%	0
A mid-sized hospital (between 75 and 250 beds), with owned or affiliated outpatient clinics (primary and specialty care).	7.1%	2
A small hospital (fewer than 75 beds), with owned or affiliated outpatient clinics (primary and specialty care).	28.6%	8
A hospital (of any size) with no owned or affiliated outpatient clinics.	3.6%	1
A single or group outpatient clinic system that is not affiliated with a hospital.	7.1%	2
Other	3.6%	1
Total	100%	28



22 – How many pharmacists are employed within the pharmacy program you manage?

Answer	%	Count
1-5	32.1%	9
6-10	17.9%	5
11-20	25.0%	7
More than 20	25.0%	7
Total	100%	28



23 – Most of the pharmacists in our organization have adequate ability to apply pharmacogenomic knowledge to the clinical management of patients.

Answer	%	Count
Strongly agree	3.7%	1
Somewhat agree	25.9%	7
Neither agree nor disagree	11.1%	3
Somewhat disagree	44.4%	12
Strongly disagree	14.8%	4
Total	100%	27

