



# Pharmacists as Pharmacogenomic Coaches

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How one innovative community pharmacist  
harnessed the power of scalable  
pharmacogenomics to improve patient outcomes.

“As healthcare providers in the 21st century, we have been given the opportunity  
of such an elegant science that can save lives. We have to use it.”

- Amina Abubakar, PharmD, AAHIVP

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# Rx Clinic Pharmacy: An Innovative Model for Collaborative Community Care



Rx Clinic Pharmacy is a pharmacy, but it does much more than fill prescriptions. This

community-focused pharmacy provides education and disease management for diabetes and HIV/AIDS, pharmacogenetic testing, and preventative care.

Using the community pharmacy model, Rx Clinic Pharmacy focuses on using collaborative healthcare practices and forming organic relationships with doctors and patients. Rx Clinic Pharmacy serves 12 healthcare clinics in the Charlotte, N.C.

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**USING THE COMMUNITY PHARMACY MODEL, RX CLINIC PHARMACY FOCUSES ON USING COLLABORATIVE HEALTHCARE PRACTICES AND FORMING ORGANIC RELATIONSHIPS WITH DOCTORS AND PATIENTS.**

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# Dr. Abubakar: An Early Adopter of PGx Testing

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Amina Abubakar, PharmD, AAHIVP, owner and founder of Rx Clinic Pharmacy, graduated from pharmacy school in 2005. Excited about her new role as a pharmacist, she was ready to take on the world.

She was only a year out of pharmacy school when she attended her brother's graduation in 2006. As she mingled after the ceremony, one of her brother's professors in biomedical engineering asked a question that caught her off guard: "What will happen to pharmacists when we map the entire human genome and can figure out which medications to give patients?"

"I just graduated," she thought. "Am I going to be out of a job already?" Dr. Abubakar began reading anything she could find about how genetics influences a patient's response to medication—a rapidly growing field known as pharmacogenomics (PGx). She realized that emerging PGx technology would likely not replace her, but instead offer a potentially valuable tool in her patient care arsenal.

Years later, in 2014, Dr. Abubakar attended a conference. A speaker came onstage to talk about a new technology. It was a genetic test that could determine whether a patient would respond to Plavix. The technology had finally arrived. Dr. Abubakar was eager to learn more.

By then, Dr. Abubakar had opened her own independent community pharmacy, Rx Clinic Pharmacy, and was a specialist in HIV patient care. In HIV care, there are many potential drug interactions that can arise.

Dr. Abubakar immediately started using the new Plavix PGx test at her pharmacy. She administered the test to her first patient and the results came back—they were a nonresponder. Dr. Abubakar faxed the results to the patient's doctor.

Almost immediately, she got a call. The doctor wanted to know who ordered the test. He was worried. What if something happened to the patient? If he acted on the results and didn't prescribe Plavix, he could be in trouble. But if he didn't act on the results and prescribed Plavix anyway, he could still be in trouble. He feared he could be exposed to a lawsuit. The doctor didn't know what to do.

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# Becoming a PGx Coach

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Dr. Abubakar realized that many doctors simply didn't know how to act on the results of PGx tests. While she didn't have all the answers, Dr. Abubakar knew two things. First, PGx testing would play an important role in the future of health care. Second, pharmacists were perfectly poised to help physicians implement this emerging technology.

Pharmacists have the most training when it comes to medication dynamics and kinetics—more than most doctors. Additionally, there's a pharmacy within a five-mile radius of every American, giving pharmacists unparalleled access to patients. Properly trained pharmacists represent an untapped resource for PGx testing implementation.

After speaking to the doctor about the patient's Plavix test results, Dr. Abubakar educated herself about PGx guidelines. She also attended the University of Florida and received a certification in precision medicine. She was now confident and comfortable letting her patient providers lean on her as a PGx expert.



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# Challenges with Implementation

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PGx implementation still posed some tough challenges.

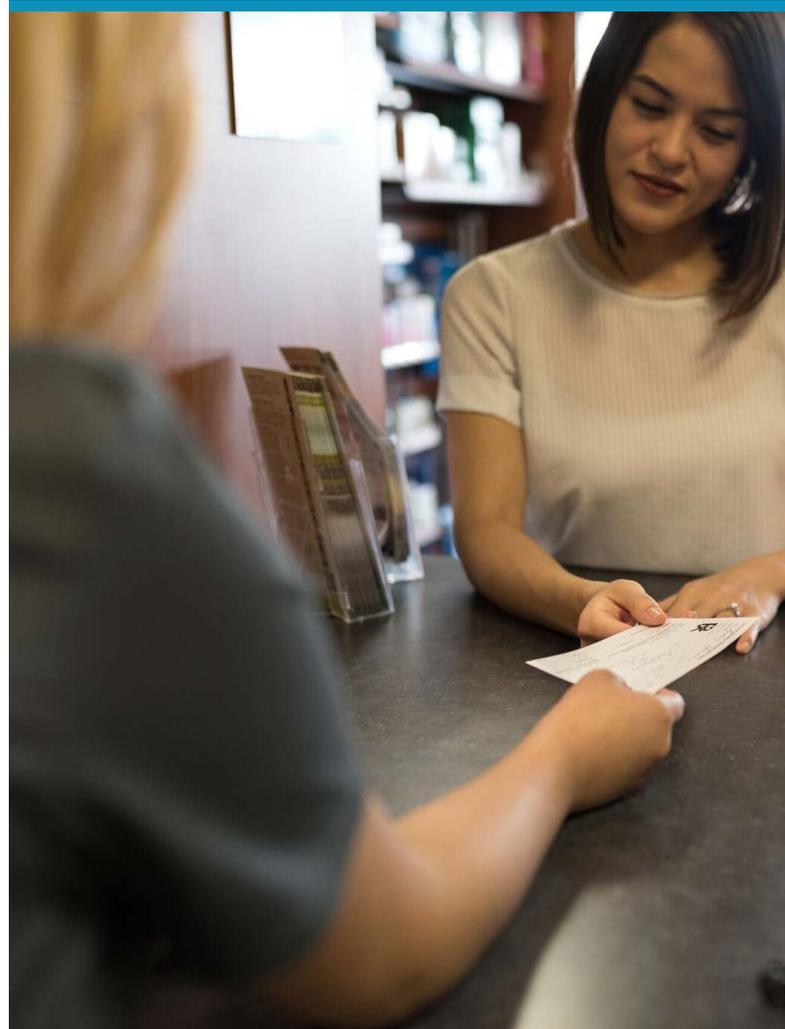
The biggest elephant in the room was the issue of scalability. Dr. Abubakar was essentially acting as the resident PGx expert for all of her healthcare providers, performing many tasks manually. This clearly wasn't a scalable model. Her pharmacy needed a standardized tool that all of her pharmacists could use to interpret PGx test results and make recommendations to providers.

Another glaring issue was the question of patient stratification, or in other words: *Whom do you test?* Sure, you could test everyone. But the return on investment would be a long way into the future—a hard sell for most organizations.

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# Translational Software: Solving Dr. Abubakar's Implementation Challenges

In the early days of PGx testing at her pharmacy, Dr. Abubakar often had questions about test results and discrepancies.

Her pharmacy's testing lab referred her to Translational Software, a PGx software solution company that helps providers and pharmacists accelerate the use of genomic data for smarter, more comprehensive health care. Combining its expertise in pharmacogenomics with advanced capabilities in informatics, Translational Software's clinical decision support platform enables customers to turn genotype information into actionable steps to improve patient outcomes—all within the clinical workflow.

In those early days, Translational Software's team helped Dr. Abubakar understand the finer details of her patient's PGx testing results and proved to be an invaluable resource for Rx Clinic Pharmacy.

While many pharmacists were reluctant to incorporate clinical services like PGx testing into their practices, Dr. Abubakar already understood the significant value that PGx testing represented. As a result, Dr. Abubakar was open to Translational Software's mission.

After meeting with representatives from Translational Software, Dr. Abubakar sat down with her team of pharmacists to put the software to the test. They uploaded their data—patient IDs and the drug codes being

prescribed at their pharmacy—into Translational Software's PGxPopulation tool. Within seconds, PGxPopulation gave them a snapshot of who was in their pharmacy and who would benefit most from PGx testing.

Dr. Abubakar and her team were blown away. Translational Software had just solved one of their biggest issues—how to stratify patients and decide who to test—in less than a minute. Dr. Abubakar called the company's representatives and asked, "How can we get this to every pharmacy in the United States?"

Next, Dr. Abubakar and her team tried out Translational Software's PGxPortal. With the PGxPortal, scalability for Dr. Abubakar and her pharmacists was no longer an issue. Everyone on her staff could now easily store and quickly translate complex genetic data into clinically relevant reports.

Dr. Abubakar was more than impressed. Translational Software's tools managed to overcome her biggest challenges while giving her a system for storing and organizing all of her patient data. The tools also worked to constantly identify new patients in need of testing, and continually update patient recommendations when new information became available.

"From a liability standpoint, it's an obvious choice. These solutions mitigate any risk that you may have had the appropriate data but failed to act on it because it wasn't stored or organized properly. To me, it's a no-brainer."

# The Transformation



## HELPING PATIENTS

With Translational Software's tools, there is now an additional layer of insight to Dr.

Abubakar's ability to help her patients. "The beauty is [that] every day we touch a life in our pharmacy, but we touch it from one angle. 'How are you feeling today? Do you think your medication is working?' " Before, when a patient wasn't responding well to their medication, all Dr. Abubakar and her pharmacists could do was recommend that they switch to a new drug, then wait to see if it worked.

But now they have a chance to identify medication issues before they occur. And if problems still arise, they can ask why the medication isn't working. "We're no longer blind," says Dr. Abubakar.



We wanted to know: How can we relieve some of the pressure from doctors?



## HELPING DOCTORS

But Translational Software doesn't just have value for Dr. Abubakar's patients, it also has

value for her physicians, as well. With a recent shift toward value-based care, the healthcare industry is now focused on improving population health management strategies. However, this has created additional stress for doctors. "We wanted to know: How can we relieve some of the pressure from doctors?" commented Dr. Abubakar.

Now equipped with Translational Software's tools, Dr. Abubakar approached her doctors about collaborating to more closely monitor patient outcomes. "Pharmacists can't make the decision to start or stop medications, but doctors can. Likewise, doctors don't have the time to dig deeper and get a comprehensive view of their patient's background, but pharmacists do. It's a mutually beneficial relationship."

For example, one of Dr. Abubakar's physicians has a large number of diabetic patients. Dr. Abubakar's pharmacy now helps them monitor A1c levels and high-risk medications. Some of their pharmacists are even embedded within the clinics to help them learn more about the needs of patients and doctors. Dr. Abubakar sees it as reimagining primary care. And the clinics that work with Dr. Abubakar and her pharmacy are seeing their output increasing and their patient outcomes improving.

# The Impact

Amina won't hesitate to tell you that, with the help of Translational Software, her collaborative, multidisciplinary approach to patient care with integrated PGx testing is clearly effective. And she has the data to prove it.

With several of her colleagues, Amina coauthored a study that was published in the *Journal of the American Pharmacists Association*: "Impact of a Pharmacist in Improving Quality Measures That Affect Payments to Physicians." The study compared patients touched by an Rx Clinic Pharmacy pharmacist performing preventative care services to the rest of the patients at the same clinic.

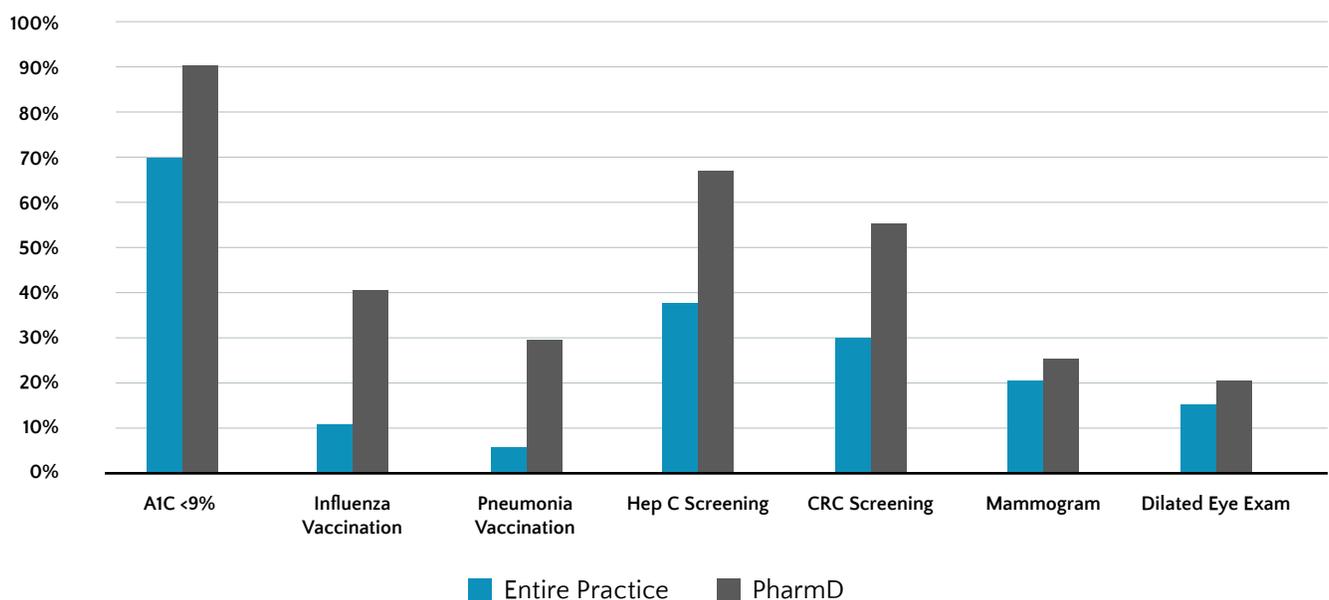
In particular, the study tracked changes in patient quality measures that are important for physician evaluation of quality metrics, and as of 2019, their Medicare

reimbursements. Amina and her colleagues saw improvements in all of the quality measures when they compared the two groups (see graph). Improvements in quality measures ranged from 5 percent to 30 percent.

This is especially significant for providers—with value-based payment models, providers can potentially increase reimbursement as quality measures improve.

These results focused on screening metrics, and Amina is still collecting data. She's seeing more of her patients reaching therapeutic goals, reducing symptoms of depression, and improving their blood pressure. Amina believes that using Translational Software's tools to identify candidates for preventative PGx testing was one piece of the puzzle in achieving these improvements.

## Pharmacist Patient Population versus Entire Practice



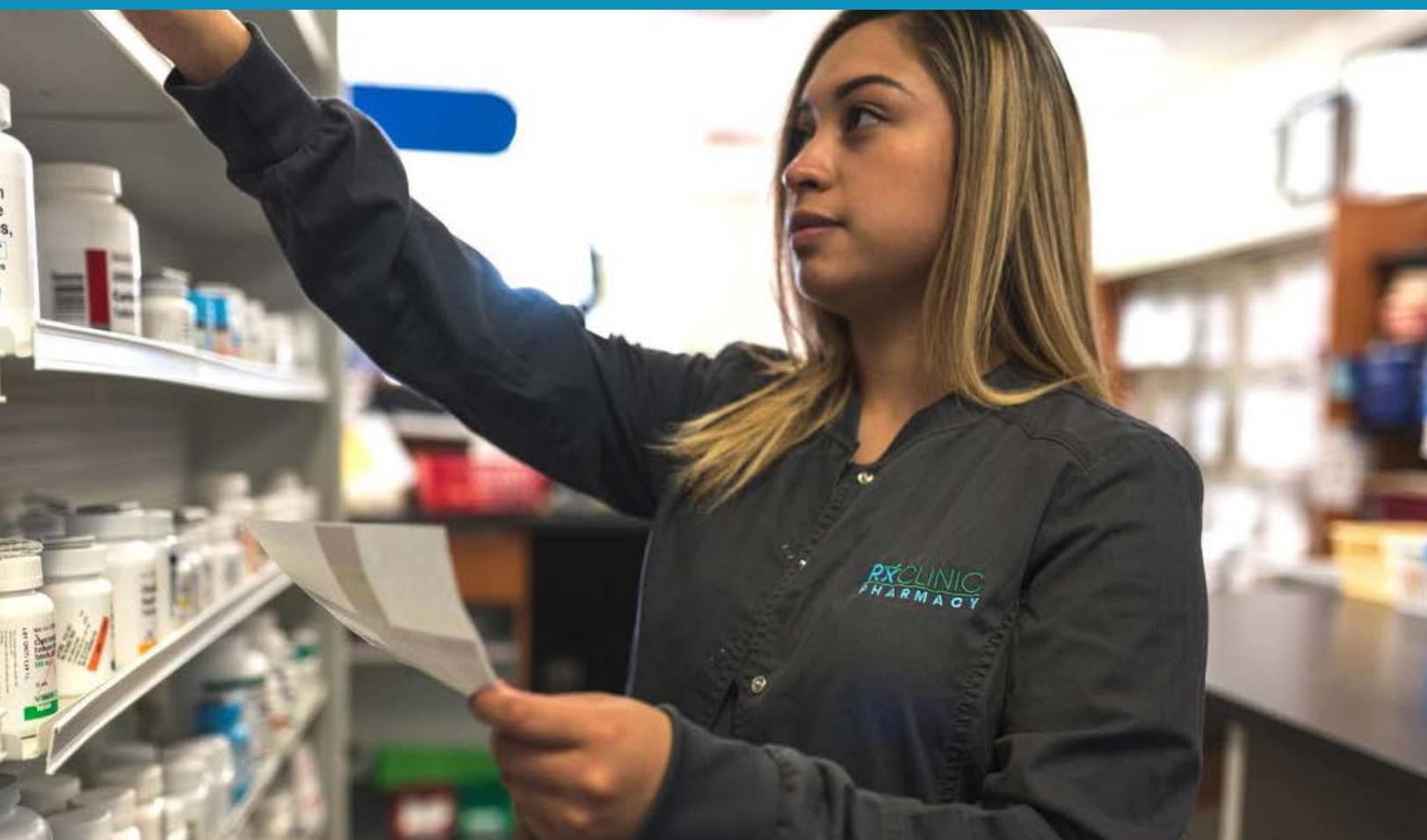
# The Takeaway

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Dr. Abubakar truly believes that PGx testing will play an integral role in the future of health care, and Translational Software is helping make the implementation of this new technology easier for pharmacists, physicians, and patients. From Dr. Abubakar's perspective, reluctance toward adopting this new technology makes no sense. "It's available, and we know the data, we know the statistics. Why go back to old ways? I would consider that malpractice."



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# The Future

Dr. Abubakar currently works with numerous pharmacy organizations and teaches pharmacists through the Avant Institute to enhance clinical programs and improve the management of patients with multiple chronic disease states. In her years of experience, she has found pharmacogenetics to be a valuable tool for selecting appropriate medications for patients on complex regimens. Her vision for community pharmacy is that tools such as Translational Software become widely

utilized to enhance patient care services. She believes that the solutions that Translational Software provides can significantly impact the way patients are targeted for pharmacogenetic testing.

“Every day pharmacists fill prescriptions. How many of those have a genetic marker? Are we just waiting for something to happen? Or can we bring ourselves closer to the reality of precision medicine?”

## One Patient's Story

PGx testing has the ability to make a difference in the lives of patients. For one patient (let's call her "Amy"), it helped solve a decades-old mystery and bring her peace of mind.

Since a teenager, Amy knew she didn't respond to pain medications the way most people do, but she never knew why. She was forced to suffer through multiple surgeries, including a full knee replacement and cervical fusion, without any relief from the pain they caused.

Percocet, morphine, hydrocodone, fentanyl. Nothing seemed to work, and her doctors were at a loss. Finally, an acquaintance of Amy's who was a pharmacology student happened to be doing a clinical rotation with Dr. Abubakar at Rx Clinic Pharmacy, suggested she get tested.



The results of her PGx test were enlightening. Amy was an ultrarapid metabolizer of many common pain medications.

While Amy is still searching for a solution to her back pain, she stopped taking her ineffective medications. As a result, her liver function test results are within a normal range for the first time in years.

*\* Patient's name has been changed for privacy reasons*

# Conclusion

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With their expert knowledge of prescription medications and accessibility to patients, pharmacists are well positioned to help physicians implement new PGx technology. Dr. Abubakar hopes other pharmacists will embrace this new role. “There’s a lot of patient trust in pharmacists—it’s so easy for pharmacists to talk to their patients. And now that dialogue can be data-driven.”

Translational Software offers tools that can help pharmacists seamlessly implement PGx solutions for their patients and providers. Request a consultation with one of Translational Software’s precision medicine experts to learn more.



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## SOURCES

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1. Sinclair, J. *et al.* Impact of a pharmacist in improving quality measures that affect payments to physicians. *J Am Pharm Assoc.* 2019 Jun 12. pii: S1544-3191(19)30137-2. doi: 10.1016/j.japh.2019.03.013.