



Using ePA and blockchain technology to ensure the right
patient gets the right medicine at the right time

- Dr. Francis Arena, CEO and CMO



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EXECUTIVE ABSTRACT

01

The delivery of targeted medical therapies in a heavily regulated environment has become a difficult and taxing adventure for physicians, insurance companies, and patients. Antiquated and inefficient protocols and procedures make the difficult work of properly authorizing such therapies even more difficult. Many doctors still need to use fax machines, as if it were 1980 and not nearly 2020. Even with computers, many physicians, insurance companies, and specialty pharmacies still experience unnecessary delays because of low-quality systems. Authorization delays can cost not only time and money to the physician and hospital practice, but also jeopardize the lives of patients.

HealthGates provides a seamless, immediate, and accurate transmittal of patient data via a blockchain protocol which allows for the nearly instantaneous authorization of targeted medical therapies to patients. It accomplishes this by electronically approving targeted or regulated therapies while the patient is still in the physician's office or clinic (without ever touching a fax machine). This will eliminate the time lag for approval or denial of certain therapies. It will also eliminate the need for peer-to-peer reviews of patient data. It will also enable specialty pharmacies to deliver medications faster than they do now.

In short, HealthGates allows physicians, insurance companies, patients, and specialty pharmacies to deliver the proper therapies in a swift and streamlined manner. In particular, its focus is on the new era of targeted or "personalized" medicines that have stamped into the medical scene in such specialties as oncology, hematology, rheumatology, gastroenterology, and neurology.



PRIOR AUTHORIZATIONS

AND THE HEALTHCARE INSURANCE MARKET

Cancer is the second most frequent cause of death in both the U.S. and throughout the world. Improvements in the early detection and targeted treatments of cancer have helped to reduce cancer related deaths by 26% over a 14 year period. Although cancer patients are living longer, more people are getting cancer and new cancer diagnoses will continue to increase by 70% over the next 20 years.

Thus, the market for targeted therapies (which represent 87% of the oncological treatments) remains robust. Oncological therapies are expected to comprise 25% of the pharmaceutical industry's revenue by 2020. U.S. sales of targeted therapies now exceeds \$10B and the total global cancer drugs market has a projected compound annual growth rate (CAGR) of 7.4%, which is likely to translate into \$160B in revenue by the year 2021.

Although the healthcare industry projects higher revenues, all parties desire to contain healthcare costs so that patients can access the care they need. This is difficult, particularly in the U.S., because of how high healthcare costs currently are.

- Healthcare spending is currently 17.9% of the U.S. economy (GDP).
- \$10,348 is the average per person cost of healthcare.
- \$3.3T is the total U.S. healthcare expenditure.
- On a global level, spending for cancer medications rose to \$133B, with the US accounting for just under half of the expenditure – ringing in at \$61B.
- The median annual cost for launching a new cancer drug exceeds \$150,000.

One of the primary sources of climbing costs is the health insurance prior authorization (PA) process. With 30% of Medicare charges done in error, this area should not be ignored.



PRIOR AUTHORIZATIONS

PROBLEMS INCREASE COSTS AND QUALITY OF CARE

Insurers, physicians, patients, and the pharmaceutical industry are disconnected from each other. While inefficiencies are inherent in any supply chain, and within all industries, the gaps between each party in the healthcare system pose potentially deadly problems for patients. HealthGates addresses one of the primary flaws in the current system: the use of outdated, and often tedious, treatment authorization protocols.

THE CURRENT PA SYSTEM IS BURDENSOME AND DANGEROUS

The American Medical Association (AMA) and other authoritative sources have released startling statistics regarding the current burdensome and unreliable authorization process:

- On average, physicians spend over 29 hours per week on prior authorization (PA) activities; this translates into 868 million hours spent on PA activities each year.
- The average annual cost to physicians for interacting with health insurers is estimated to be between \$23B to \$31B.
- 78% of physicians surveyed by the AMA reported that PA related problems are either sometimes, often, or always the cause of abandoning patient treatment.
- 92% of physicians stated that the PA process has a negative impact on “patient clinical outcomes.”
- An overwhelming majority of physicians, 79%, are mandated to send additional PAs for prescription medications even if a “patient is stabilized on a treatment regime for a chronic condition.”
- PA denial rates range from 6% to 38% depending on the insurer; on average, 1 out of every 5 PAs are either delayed or denied.
- Each year, health insurers deny \$262B worth of claims and 70% of those claim denials are for patients whose condition was indicated as “serious.” 70% of the denials stem from prescribing experimental therapies.

It's not only the physicians who find the entire protocol costly and cumbersome: pharmacists also must endure the outmoded PA system. On average, pharmacists spend 5 hours each week on PA requests. This is time that could be better spent addressing the growing demand for specialty medications

The current prior authorization process is not all bad; it ensures that prescribed treatments are being used appropriately. But the system's costs are steep compared to its intended benefits. Now, the HealthGates team has developed a blockchain-based solution that provides the current system's benefits, but faster, more accurately, and with the potential to save millions of dollars.

Digital PA systems are not new, but they aren't widely used as the sole method of transmitting the required information. Even though "the vast majority of payers [health insurers]" have stated their commitment to implementing e-authorizations, only 24% of physicians surveyed by CoverMyMeds indicated that e-authorizations were their only method for meeting the PA requirements. This is the case despite digital PAs costing far less than manual process (\$1.89 per PA vs. \$7.50).

The reason electronic PA systems have not been widely adopted is because each health insurer has its own set of PA requirements and they have not agreed on one electronic system. HealthGates is designed to function as an integrated system that works across insurance companies, allowing for use by all participants in the healthcare system.



THE HEALTHGATES

BLOCKCHAIN SOLUTION

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HealthGates is blockchain-based system for the transmission of patient data. It is designed to improve the speed and efficiency of the communication between the pharmaceutical industry, health care providers, insurance industry, and patients. It does not just “eradicate the fax machine.” It replaces a broken PA system that often significantly delays critical treatment. It replaces distant bureaucrats with the immediate expertise of cutting-edge experts. And it seeks to improve upon a system where 50% of initial pre-authorizations are denied.

Its benefits are substantial. By confirming that the correct treatments are provided to the correct patients, it reduces the role of human error and it provides security to insurance companies that costly therapies are being ordered against published guidelines. By reducing bureaucracy, it gets life-saving treatments to patients faster.

HealthGates accomplishes these goals with three distinctive products: GateMasterProvider, GateMaster – Industry, and GateMaster – Patient. HealthGates also has a proprietary compendia, built from the ground up by CEO and CMO, Dr. Francis Arena, a world-renowned oncologist and leading authority in the field with over 30 years of experience treating patients and teaching medicine at universities such as NYU and Cornell.

GATEMASTER – PROVIDER SOLUTION

Recent advances in complicated targeted therapies have made it difficult for participants in the healthcare industry to stay current on the specific indications for new medicines. But HealthGates has developed a process for ensuring that the proper medication is precisely aligned with the unique therapeutic needs of each patient.

Through collaboration with insurance companies or their carriers, HealthGates will provide an easy-to-use website or downloadable app for physicians and other healthcare providers to use to identify the correct treatment for patients.

Unlike traditional compendia such as the NCCN or ASCO guidelines, which only offer a disease-focused listing, HealthGates identifies the newest in targeted or personalized medicines and sets a series of “gates” to determine which is appropriate.

To cross “the gates,” healthcare providers answer a small series of questions, usually between five and seven. By answering the questions sequentially and correctly, the software immediately authorizes the use of the correct medication and provides information about its proper usage. This approval will be pre-negotiated with insurance companies through the use of the World Health Organization’s International Statistical Classification of Diseases and Related Health Problems, known as the ICD-10. No further inquiry or time spent debating with insurers is needed; all of this can be done while the patient is still in the office and the entire process takes only a few minutes.

Furthermore, GateMaster Provider protects against the inappropriate ordering of medicines beyond their medical guidelines. If the questions are answered incorrectly, the software will deny the medication and display the reasons for the ineligibility, along with references to substantiate the decision.

These gates are based on the HealthGates proprietary compendia, which will be an industry-leading reference guide. The HealthGates compendia will initially focus on immunotherapies, but will eventually expand to include other therapy types. The HealthGates compendia will be peer-reviewed by the company’s advisory board, which includes representatives from the whole healthcare ecosystem (including insurers, specialty pharmacies, providers, and patients).

GATEMASTER – INDUSTRY SOLUTION

Currently, physicians often need to search among a wide array of treatments for the right medicine or family of medicines for their patient. This can be a time consuming and error-prone exercise. It also makes it very difficult for pharmaceutical companies to alert providers to recent advances and new options in care. But HealthGates provides the pharmaceutical industry with a streamlined platform to present their targeted therapy solutions to the right patient at the right time.

GateMaster Industry allows pharmaceutical companies a new way to showcase novel therapies. Pharmaceutical companies can submit their drug for admission into an insurance company's formulary through an application with the HealthGates link. The companies will use the HealthGates software to respond to questions about the drug and to upload supporting literature and studies. If the drug successfully passes through the "gates," the medicine becomes eligible to be recommended, prescribed, and filled through the HealthGates system.

A physician can access the HealthGates GateMaster-Industry database either directly through their HealthGates link, a plugin in their Electronic Medical Record (EMR) system, or through a link provided by the pharmaceutical company's website. This database allows physicians to not only pre-authorize insurance-approved medication, but also request novel therapies to be added if they meet appropriate guidelines. GateMaster-Industry allows physicians to quickly and efficiently narrow their search down to the proper, scientifically proven, FDA approved drugs. It reduces the likelihood of error or oversight and it clarifies the indications and restrictions of new treatments.

HealthGates also allows specialty pharmacies to become preferred providers once they have passed a rigorous set of credentials that include being a time efficient and cost effective provider.

GATEMASTER – PATIENT

Patients are often confused, anxious, and frustrated when confronted with options about treatments for their diseases. Commercials on TV, radio, and in the press often do not answer the patient's main question: "Will this medicine work for me?"

The GateMaster – Patient incorporates all of the features of GateMasterProvider and GateMaster – Industry, but in layman's terms. It allows for the patient or their family members to have a proactive role in seeking out therapies that might be right for them.

GateMasterPatient is an online interactive portal that informs patients of the available targeted treatments for their condition. The GateMaster – Patient portal link can be attached to any pharmaceutical website or through links on an insurer's website. By answering questions or "gates" in the simplest terms, a patient can learn about therapies or medicines to discuss with their health care professional.



GateMaster – Patient also provides a marketing opportunity for pharmaceutical companies and healthcare providers. The United States and New Zealand are the only two countries in the world where direct-to-consumer advertising for therapies is legal. To date, this advertising has been directed at the patient with no easy call-to-action other than, “talk to your doctor.” But GateMaster – Patient directly informs patients about new therapies and can connect patients to HealthGates-approved physicians.



THE HEALTHGATES

BUSINESS MODEL

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The business model for HealthGates focuses on the different needs of each participant in the healthcare industry.

For physicians and hospitals, HealthGates – Provider will be offered free of charge to each of these sites, provided they acquire at least a small number of GATES tokens. Once physicians adopt HealthGates, Electronic Medical Record (EMR) systems, such as Cerner, Epic, or Athena Health, may integrate the HealthGates system for a fee.

For the HealthGates – Industry, there are three primary clients: insurance companies, pharmaceutical companies, and subspecialty pharmacies. Insurance companies have the most to gain from the HealthGates system, given its potential to promote efficiency and reduce fraud. The fee structure for insurance companies will not be based on denials. Instead, insurance companies will pay HealthGates 1.75% of the cost of each authorization or denial each time the HealthGates system is used. This pricing structure can save insurance companies billions of dollars and it can generate hundreds of millions of dollars for HealthGates.

Pharmaceutical companies may also become HealthGates sponsors for a fee. Each sponsorship will allow them to integrate HealthGates on their website, thus providing access for patients and providers. It will also allow them to advertise on the HealthGates website. Pharmaceutical companies will also pay to submit their drug as a candidate for the HealthGates compendia. This fee will cover the cost of an in-depth review of the application, which must feature detailed references in medical literature to back their claims that their therapy is appropriate for a given condition.

Specialty pharmacies may also pay HealthGates to be considered for its preferred list. When a specialty pharmacy successfully navigates through the “gates” to evaluate whether it meets high quality standards, it will be added to HealthGates’ preferred list of specialty pharmacies. To the pharmacies, this is a very small cost and a way to generate business. For HealthGates, this is an untapped revenue stream that could be in the millions of dollars each year.

Each time a physician, health care professional or patient makes an inquiry about a certain medicine or disease, they will be shepherded through the HealthGates portal where the “gates” will direct their inquiries. A banner or impression of the pharmaceutical product will be running alongside the portal. Pharmaceutical companies can also pay in GATES token to submit their drug as a candidate for the HealthGates compendia. This fee will cover the cost of an in-depth review of the application, which must feature detailed references in medical literature to back their claims that their therapy is appropriate for a given condition.

Specialty pharmacies represent an often overlooked yet very important and lucrative facet of the targeted medicine ecosystem. There are multiple such companies throughout the US. Some have excellent reputations, offering patients support or direction for co-pays, offering insurance companies competitive pricing, and offering physicians dependable and timely delivery of these medications. Other pharmacies do not share these same attributes.

Our plan is to vest those excellent companies as preferred providers in the HealthGates network based on the criteria listed above. When a health care provider successfully navigates through the “gates,” they will be directed to the preferred list of specialty pharmacies for obtaining of the drug. To the pharmacies, this is a very small cost and a way to generate business. For HealthGates, this is an untapped revenue stream that could be in the millions of dollars each year.



TECHNOLOGICAL SPECIFICATIONS

06

Our on-chain system will consist of transactions being recorded on the Ethereum blockchain. HealthGates has chosen Ethereum due to its robust proof of concept as one of the largest and longest running blockchain protocols. Its systemic flexibility for creating DApps and extensible smart contract capabilities are applicable to a wide range of sectors, including healthcare. .

Using blockchain technology yields numerous benefits. These include:

- Immutable log of prescription actions;
- Insight on prescription trends for industry partners;
- Assurance of accurate prescriptions for patients;
- Rules-based system for insurance actuaries;
- Offers a way to track ROI on marketing;
- Immediate approval written into a smart contract

The only data available for viewing will be the GATES token transactions occurring between large token holders. In order to ensure that the storage and/or transmission of patient data is HIPAA compliant, HealthGates will use an off-chain, ISO 9001:2013-certified database to store patient data. No sensitive information will be stored on-chain and no patient information will be stored in conjunction with the GATES token.



GO-TO-MARKET STRATEGY

07

HealthGates was founded by Dr. Francis Arena, a leading authority in oncology who has treated patients in an independent medical practice and in major institutions like NYU Langone. Its team is well versed in mid-sized medical practices and has partnerships with larger groups to capture each of the targeted demographics in the healthcare industry.

Its proof of concept will be launched with an initial partner in each category: an insurance company, a provider group and a specialty pharmacy. As it expands, HealthGates will hire ex-pharmaceutical sales representatives with whom its team has existing relationships. These new staff members will assist HealthGates by developing additional partnerships and participants within each GateMaster category.

In terms of therapy focus, there are several areas that would benefit immediately from the use of GateMaster software. Highly specific immunotherapies would stand to benefit greatly from the technology. Another likely use case is medical marijuana. In New York State, for the most part, there is no preauthorization simply because no insurance companies allow it. Furthermore, banks cannot work with marijuana firms due to federal marijuana laws prohibiting such relationships. As such, it is a cash and carry business. Yet, there is a major exception: New York State's worker's compensation insurance system does pay for medical marijuana, which can be obtained with preauthorization. Doctors currently need to "write a letter of necessity" each and every time they want to prescribe medical marijuana. But HealthGates may add value as a digital authorization system within the medical marijuana industry as a digital record of allowances, thereby drastically reducing fraud.

COMPETITIVE ANALYSIS

	HealthGates	CoverMy Meds	Surescripts	Athena Health	PriorAuth Now
Targeted Meds Only	Yes	No	No	No	No
Blomarker Driven	Yes	No	No	No	No
EMR or Alone	Both	EMR Only	EMR Primarily	EMR Only	EMR Only
Time to PA	Immediately	"1.5 Days"	Real Time?	Within a week	Reduce Time
Cost to MD's	None	None	None	Upfront costs	Upfront costs
Dedicated to PA	Yes	Yes	No	No	No

TOKENOMICS

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OLD SYSTEM

FUNDS FLOW

EXAMPLE ASSUMPTIONS

WAC	AWP
\$200	\$240

PRODUCT FLOW

CONSUMER		
PAYMENT	RECEIVES	NET COST
Insured: Co-pay/Co-insurance (Depends on benefit plan design) EX: \$20 co-pay Uninsured: Out-of-pocket payment (Depends on pharmacy/manufacturer discounts)	Consumer receives the prescription	Leaser of Co-payments/Co-insurance & the AWP EX: \$20 or \$240 depending on insurance

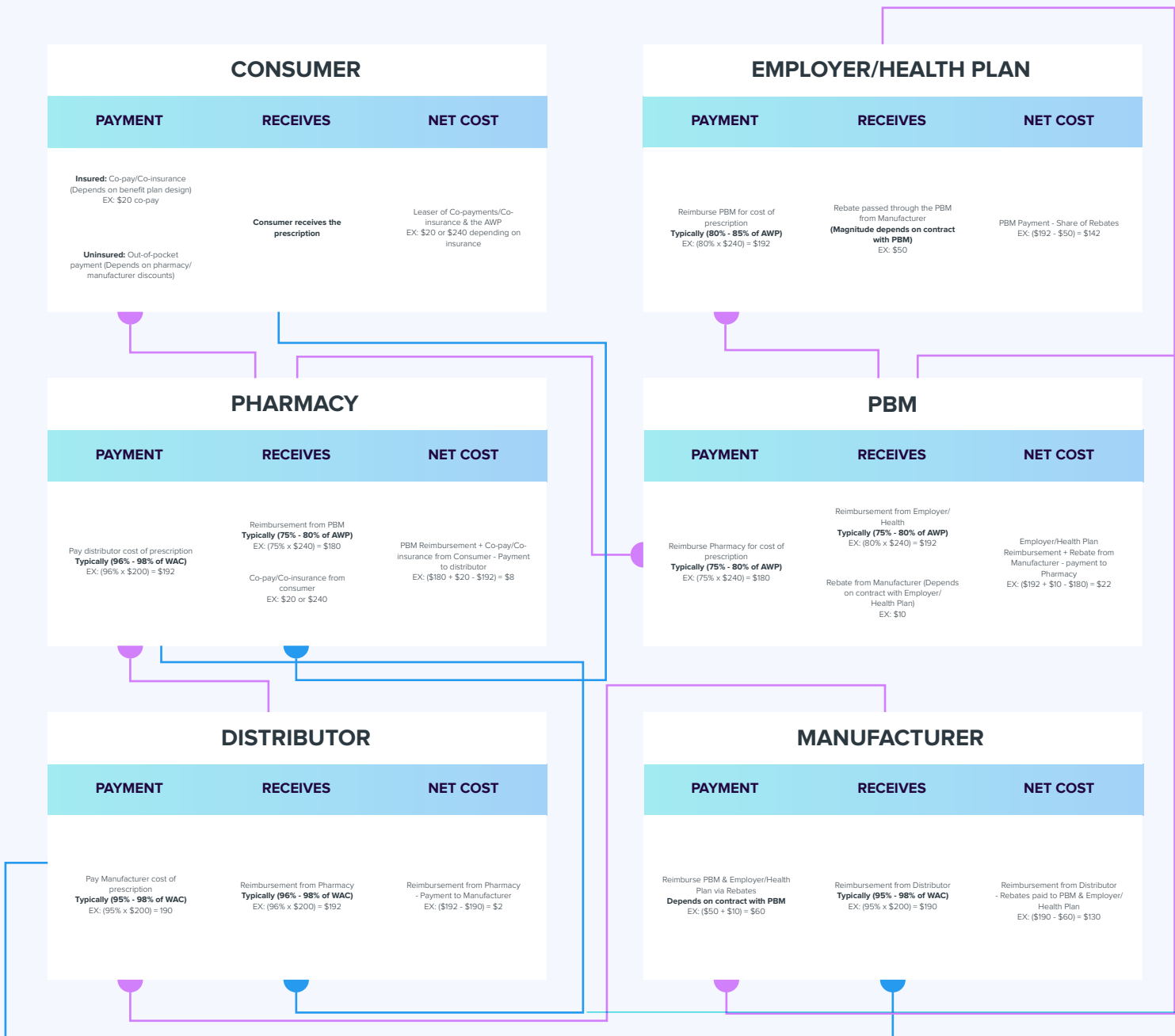
EMPLOYER/HEALTH PLAN		
PAYMENT	RECEIVES	NET COST
Reimburse PBM for cost of prescription Typically (80% - 85% of AWP) EX: (80% x \$240) = \$192	Rebate passed through the PBM from Manufacturer (Magnitude depends on contract with PBM) EX: \$50	PBM Payment - Share of Rebates EX: (\$192 - \$50) = \$142

PHARMACY		
PAYMENT	RECEIVES	NET COST
Pay distributor cost of prescription Typically (95% - 98% of WAC) EX: (96% x \$200) = \$192	Reimbursement from PBM Typically (75% - 80% of AWP) EX: (75% x \$240) = \$180 Co-pay/Co-insurance from consumer EX: \$20 or \$240	PBM Reimbursement + Co-pay/Co-insurance from Consumer - Payment to distributor EX: (\$180 + \$20 - \$192) = \$8

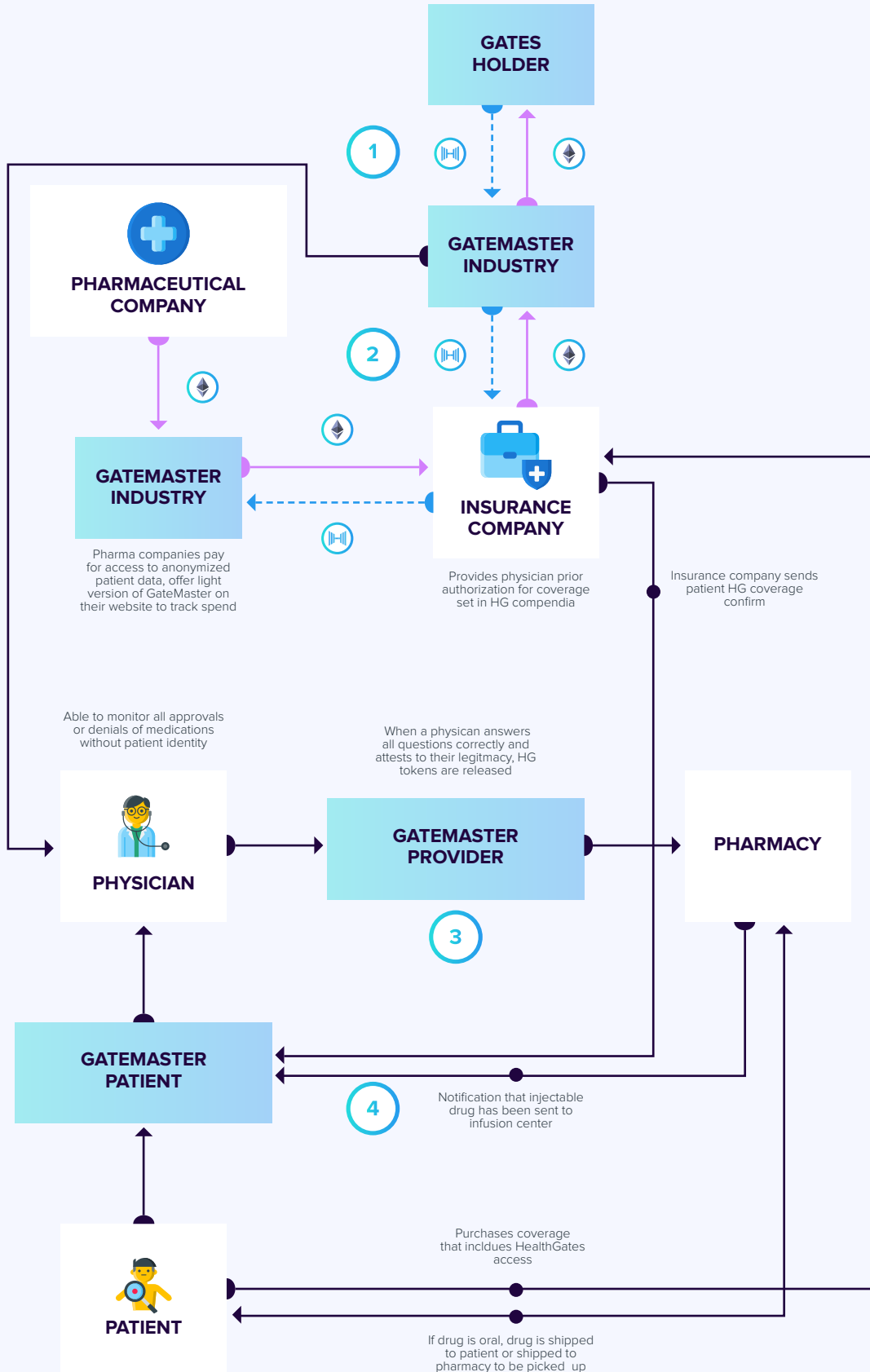
PBM		
PAYMENT	RECEIVES	NET COST
Reimburse Pharmacy for cost of prescription Typically (75% - 80% of AWP) EX: (75% x \$240) = \$180	Reimbursement from Employer/Health Typically (75% - 80% of AWP) EX: (80% x \$240) = \$192 Rebate from Manufacturer (Depends on contract with Employer/Health Plan) EX: \$10	Employer/Health Plan Reimbursement + Rebate from Manufacturer - payment to Pharmacy EX: (\$192 + \$10 - \$180) = \$22

DISTRIBUTOR		
PAYMENT	RECEIVES	NET COST
Pay Manufacturer cost of prescription Typically (95% - 98% of WAC) EX: (95% x \$200) = 190	Reimbursement from Pharmacy Typically (96% - 98% of WAC) EX: (96% x \$200) = \$192	Reimbursement from Pharmacy - Payment to Manufacturer EX: (\$192 - \$190) = \$2

MANUFACTURER		
PAYMENT	RECEIVES	NET COST
Reimburse PBM & Employer/Health Plan via Rebates Depends on contract with PBM EX: (\$50 + \$10) = \$60	Reimbursement from Distributor Typically (95% - 98% of WAC) EX: (95% x \$200) = \$190	Reimbursement from Distributor - Rebates paid to PBM & Employer/Health Plan EX: (\$190 - \$60) = \$130



NEW SYSTEM



GATES tokens are ERC20 tokens and represent a prescription that can be tracked from start to finish.

Early supporters of the HealthGates ecosystem purchase GATES tokens. Eventually, Insurers buy at least 100,000 tokens from early token holders and from the HealthGates company. As part of the purchase, they agree to cover enrolled patients for treatments based on a compendia provided by HealthGates.

When a physician prescribes treatment for an enrolled patient, the physician completes the HealthGates questionnaire to confirm that the proposed treatment meets the insurer's prior authorization criteria. Once the questionnaire is successfully completed, by successfully passing through GateMaster Provider and digitally attesting and signing to the correctness of their answers, the physician receives tokens from the insurance company and can then send them to the insurance company's preferred specialty pharmacy.

If the prescribed treatment is an oral agent, the pharmacy can automatically send the token to the patient. When the patient picks up the treatment from the pharmacy, she can present this token to confirm her identity and receipt of treatment at the pharmacy counter. Alternatively, the specialty pharmacy can also send the drug directly to the patient by overnight delivery and, at the time of delivery, the delivery person can confirm that the patient has the correct token when she digitally signs for the medication.

If the medication is an injectable agent, the specialty pharmacy sends the drug to the infusion center (such as a hospital, clinic, or doctor's office). The infusion center confirms that this GATES token was the same as the one that was sent to the patient and the drug is unlocked.

The numbers above represent the movement of the token:

1. Supporters of the HealthGates ecosystem purchase GATES tokens and are able to earn ETH from selling the tokens to insurance company partners.
2. Insurance companies purchase GATES tokens from HealthGates or token holders, which will be available through an exchange.
3. Physicians unlock GATES tokens by passing through GateMaster Provider portal.
4. Pharmacies confirm the receipt of GATES tokens from a time stamped physician wallet address and match the patient tokens to the wallet address when the tokens are presented by the patient at the pharmacy or during the prescription delivery.

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ROADMAP



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THE TEAM



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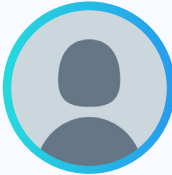
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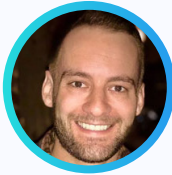
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