Я-*pharmacy*™

Patent No. US 8,028,822
Automatic Distributed Vending System

Patent Pending No. US 13,335,954
**Optimization of Pharmacy Operations using
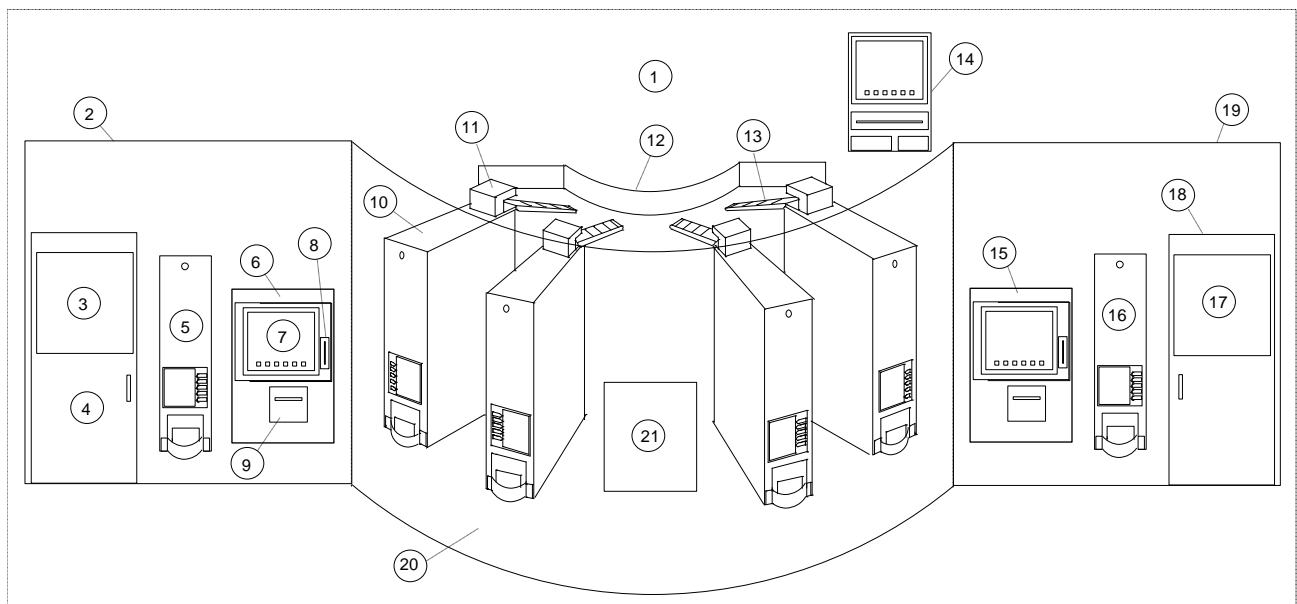Automatic Distributed Vending System**

REV 2
December 14, 2013

LISTED DRAWINGS, ART – ARE NOT TO SCALE, AND FOR ILLUSTRATION PURPOSES ONLY.

Patent No. US 8,028,822
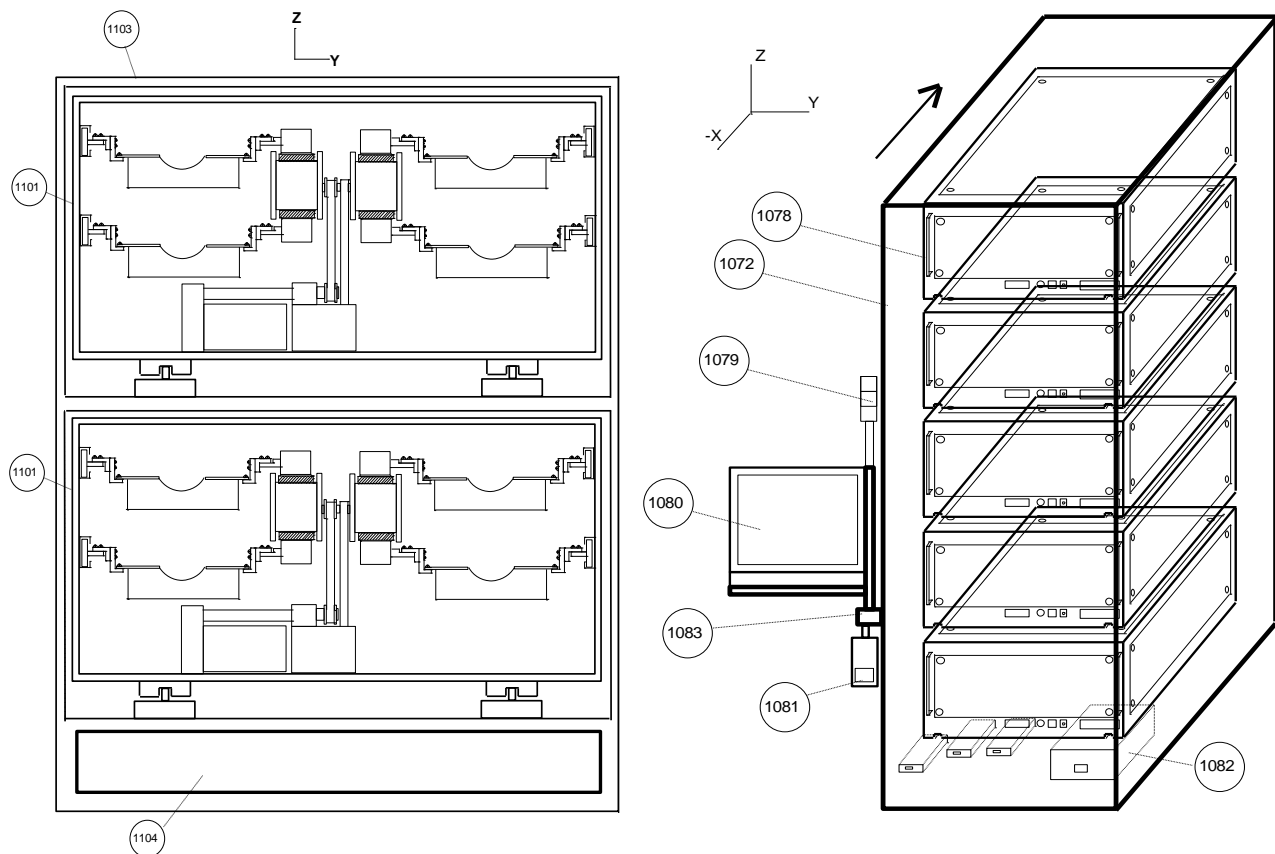## Automatic Distributed Vending System

Invention describes apparatus automating item processing including pharmacy. Apparatus includes portable vending cartridges, automatic vending modules, controllers. Cartridge contains conveyor transporting items inside carriers. Cartridges slide-into receptacles inside vending module. Controllers monitor in real-time presence of cartridges, inventory of carries and items, and execute controls of each cartridge including: indexing conveyors; loading and/or unloading items into/from carriers; maintaining items within specifications - environment, handling, safety with reports confirming compliance. Controllers execute in real-time optimization algorithm to achieve required performance: rates of item loading/unloading, power consumption. Pharmacy applications include cartridges designed for handling containers with medications. Apparatus supports centralized processing of medications: at one location cartridges are filled with medications and transported to assigned destinations for insertion into designated modules for dispensing medications to authorized customers. Number of apparatuses could be configured as closed-loop real-time process control system aimed at achieving optimum utilization of resources and delivering products within specifications.
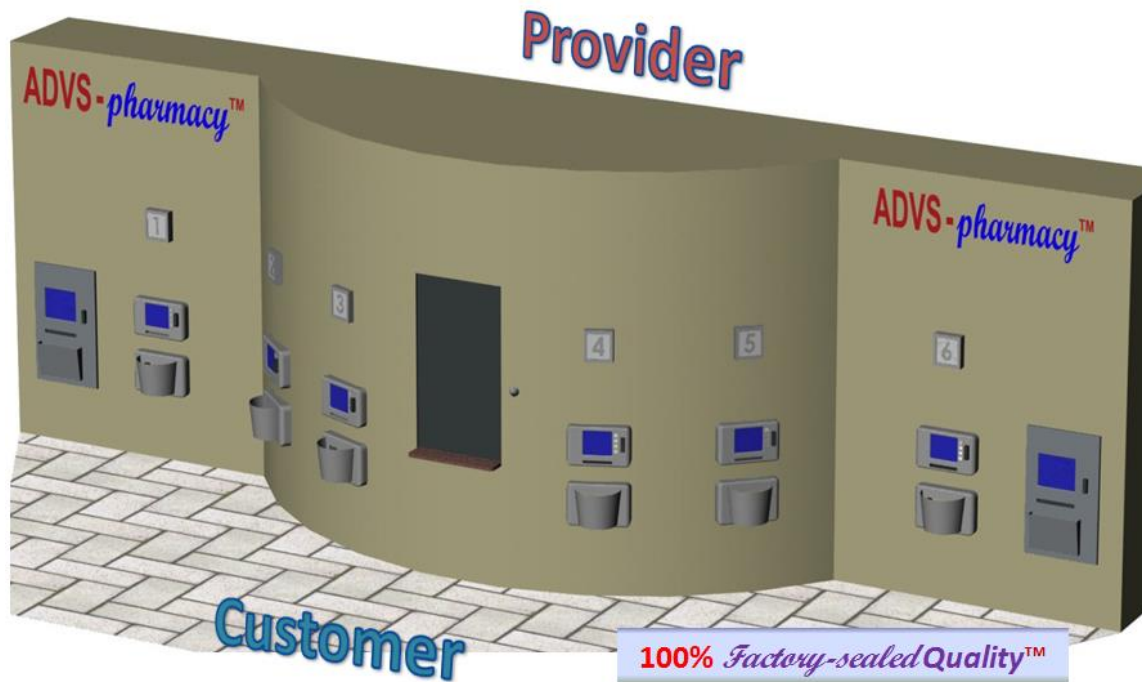
<u>Patent-pending application No. US 13,335,954</u>
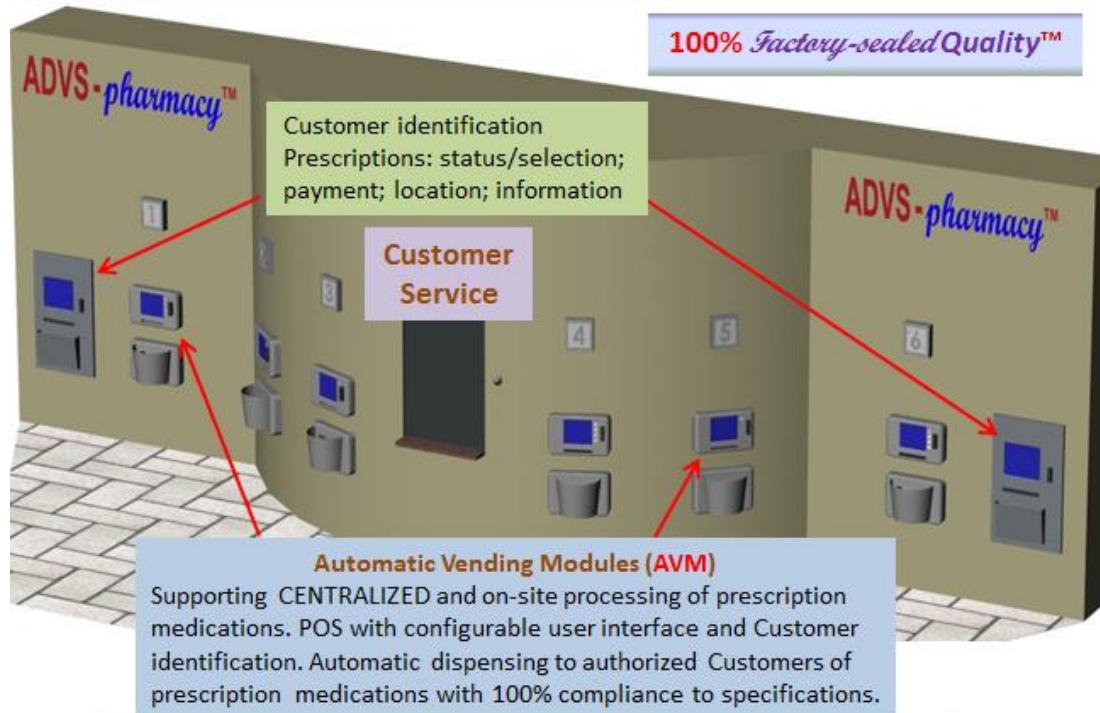## Optimization of Pharmacy Operations using Automatic Distributed Vending System

Invention describes apparatus for automating operations of pharmacies. Apparatus includes portable vending cartridges, cartridge transport rack, automatic vending modules, controllers. Cartridge contains conveyor transporting containers with medications secured inside carriers. Cartridges slide-into receptacles inside vending module. Controllers monitor in real-time presence of cartridges, inventory of carries and containers with medications, and execute controls of each cartridge including: indexing conveyors; loading and/or unloading medications in/from carriers; maintaining medications within specifications - environment, handling, safety with reports confirming compliance. Controllers execute in real-time optimization algorithm to achieve required performance: rates of medications loading/unloading, power consumption. Apparatus could be configured to operate centralized medication processing center with distributed deliveries of medications to vending modules located at pharmacies, stand-alone kiosks, customer homes. Number of apparatuses could be configured as closed-loop real-time process control system allowing optimum utilization of pharmacy resources and delivering medications within specifications. Controller maintains all medications inside apparatus within specification requirements.
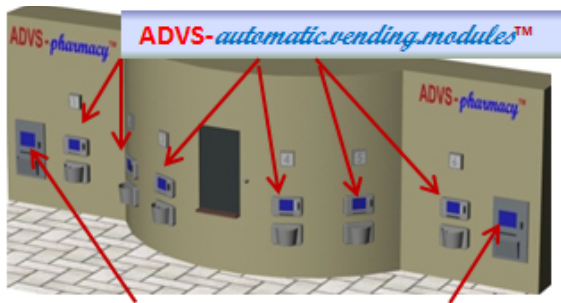
Superior **QUALITY** product ➡ delivered in seconds to 6 Customers at once

100% *Factory-sealed Quality*™

Customer identification
Prescriptions: status/selection;
payment; location; information

Customer Service

Automatic Vending Modules (AVM)
Supporting CENTRALIZED and on-site processing of prescription medications. POS with configurable user interface and Customer identification. Automatic dispensing to authorized Customers of prescription medications with 100% compliance to specifications.
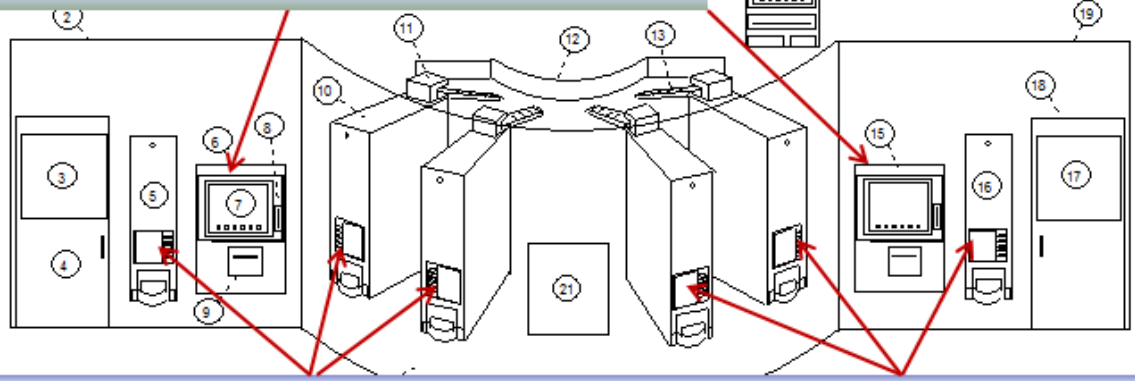
Maximum Dispensing Rates (Customer or Provider)
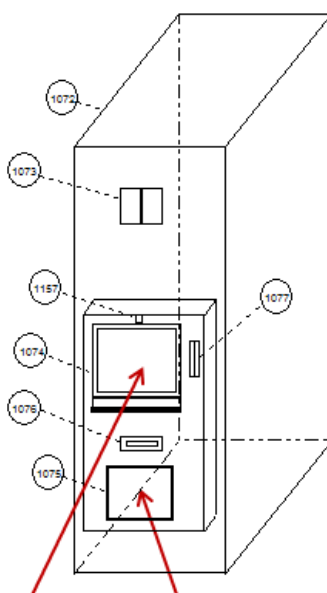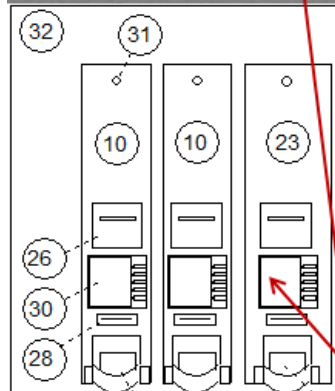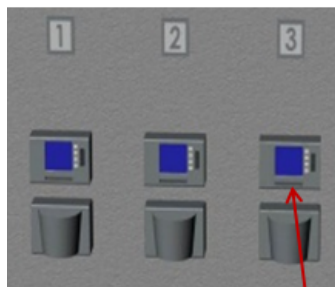10 prescriptions in 15 seconds per each **AVM** unit, independent of others

ADVS-*pharmacy*™ as shown, is configured as model **ADVS-1200**, based on six **ADVS-automatic.vending.modules**™ model **AVM-200**, each with capacity of 200 prescription containers, and dispensing rates as high as 10 prescriptions in 5 seconds per Customer, serving 6 Customers at once, with on-site **ADVS-pharmacy.connect**™ real-time voice/video assistance, as needed.

PC stations – providing Customers with convenient: registration, status verification of prescriptions, payments for prescriptions, printing receipts, information about prescriptions

ADVS-automatic.vending.module ™ (AVM) dispensing items (Prescription Medications) to authorized Customers. Each AVM could be configured to dispense items also to Provider, as needed, including necessity to remove prescriptions from "circulation" as being out of specifications (expired date, etc.)

100% guaranteed QUALITY
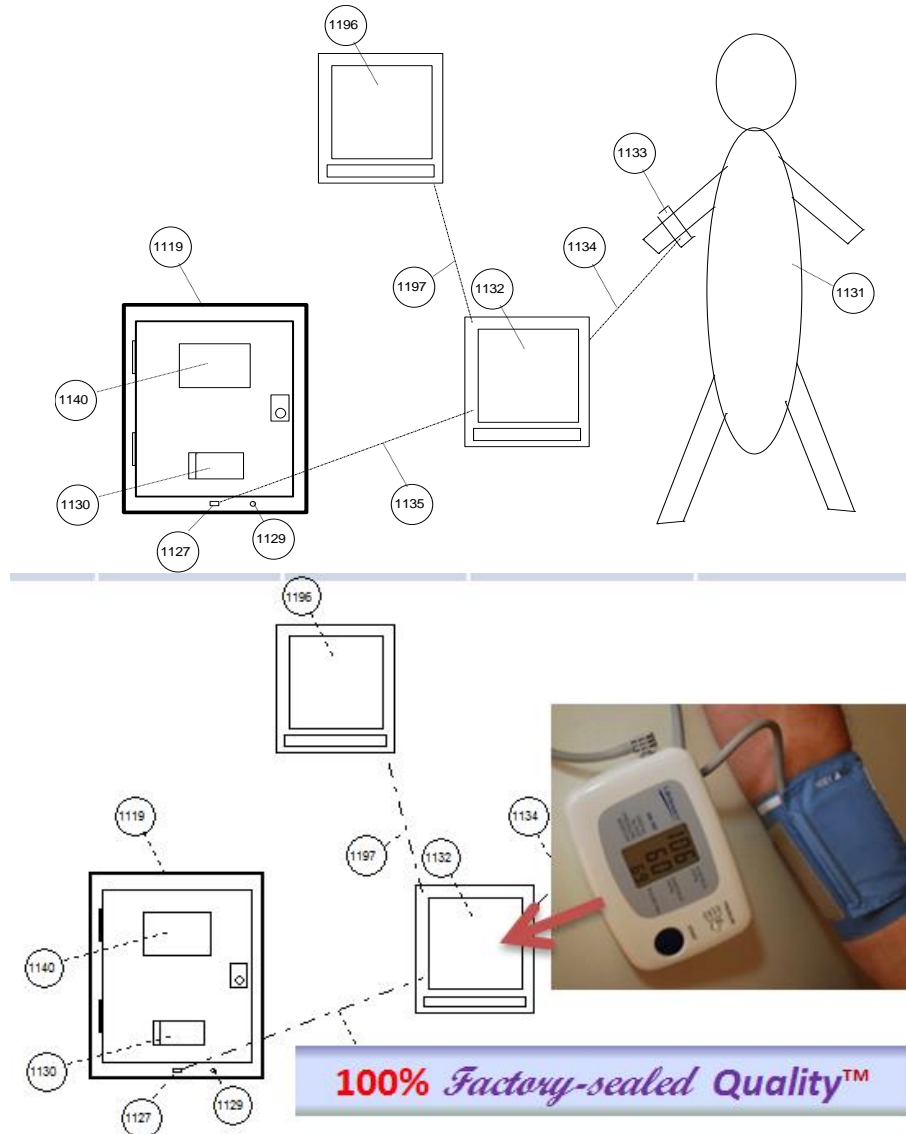*confirmed in writing*
(Log sample below)

ADVS Report: Date, Time

Prescription No. _____

Customer No: _____

Origination: _____

Date, Time

Transit Start: Date, Time

Destination: _____

Date, Time

Security: _____

Environment: _____

Customer: Date, Time

100% *Factory-sealed Quality*™

AVM-200 dispensed prescription pick-up bin

AVM-200 User Interface – providing Customers with: convenient :registration, status verification of prescriptions, payments for prescriptions, printing receipts, information about prescriptions is available via print-out, and on-site **ADVS-pharmacy.connect**™ with real-time voice/video assistance provided by pharmacists located at **ADVS-pharmacy.central**™
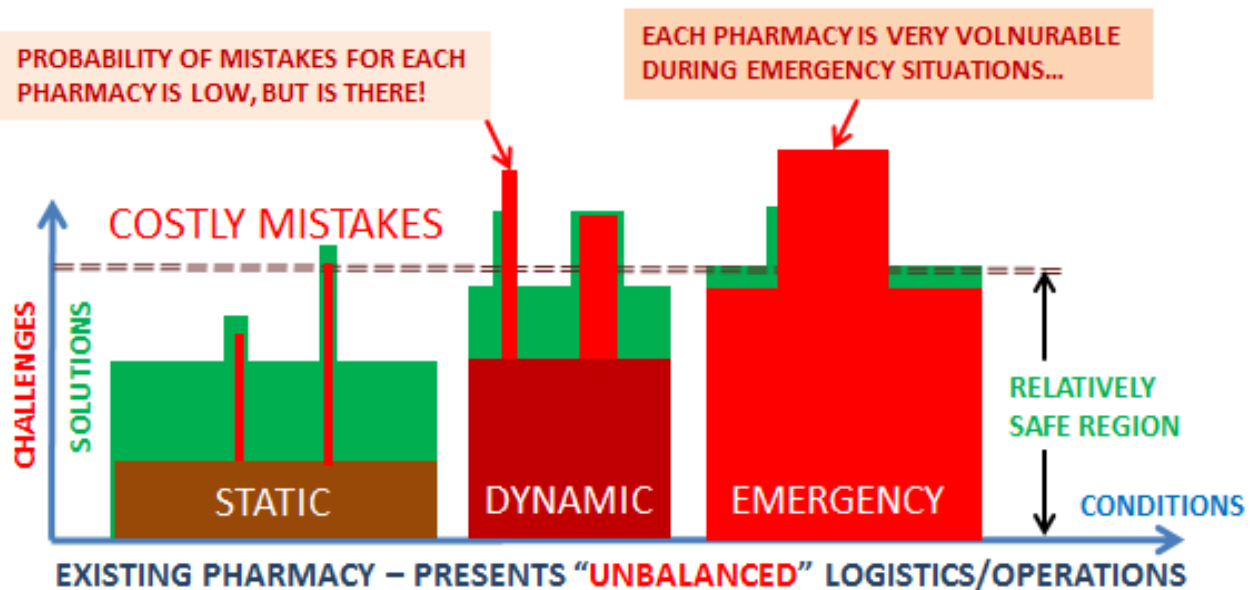
ADVS-*pharmacy.4u*™

As an example – **ADVS** controlled dispensing of pre-packaged medications in required dosage based on real-time Patient diagnostics, such as blood pressure (example below). The required dosage as function of the blood pressure, and the scheduled time-based sequence to correct the condition, is established by the Patients Physician, and entered into **ADVS** Controller non-volatile memory as a Control Table (illustration below). **ADVS** Controller will interface with blood measuring instrument attached to the Patient, and based on Patient condition (Systolic readings, as shown), and based on Control Table will automatically direct **ADVS-***pharmacy.4u*™ to dispense specified amount of medication to an authorized person at required times (intervals), and inform (voice/video) the patient (care-provider) that medication is available . All medications are secured inside **AVM** unit, and are dispensed only in required dosage per control algorithm provided by authorized physician, and at specified times. This eliminates potential mistakes, including when a patient intentionally or by an oversight would take a wrong amount of medication. Real-time status and history, as well as "Notifications" to Physician - could be viewed by Physician or an authorized person locally and/or remotely, via wired or wireless LAN, Internet. On-site 24 hours support is available via **ADVS-***pharmacy.connect*™ real-time voice/video.

Existing Pharmacy Operations

Every business is **CHALLENGED** by "business-specific variables", which include: **STATIC** (relatively regular or continuous); **DYNAMIC** (relatively unusual or periodic); **EMERGENCY**.
In respect to Pharmacies, **STATIC** – is represented by typical demand for medications available on the market; **DYNAMIC** – is represented by substantial increase in demand due to periodic events, such as flu season, as function of environment/weather; and **EMERGENCY** – are rare but possible events, such as: loss of power; epidemic; etc. Business objective is to achieve **BALANCED OPERATIONS**, i.e. → develop cost-efficient logistics, which will allow to allocate appropriate resources **(SOLUTIONS)** to match **STATIC**, **DYNAMIC**, and **EMERGENCY** conditions with minimum **RISKS** of failure or mistakes, which could jeopardize business integrity. *The graph below is illustration of the current ability of each Pharmacy to address the* **CHALLENGES**. Note, that for business (such as a franchise) with several Pharmacies → the probability of **MISTAKES/LOSSES** is practically multiplied by the number of Pharmacies!

EXISTING PHARMACY – PRESENTS "UNBALANCED" LOGISTICS/OPERATIONS

In todays environment with state-of-the-art technologies "buzzing" around, and significant amount of resources invested by many companies in producing good medications, it is unacceptable to all CUSTOMERS, including you and me, to face "unbalanced" logistics of operations at Pharmacies, and as result - risks of getting the wrong medication. The problem must be resolved…
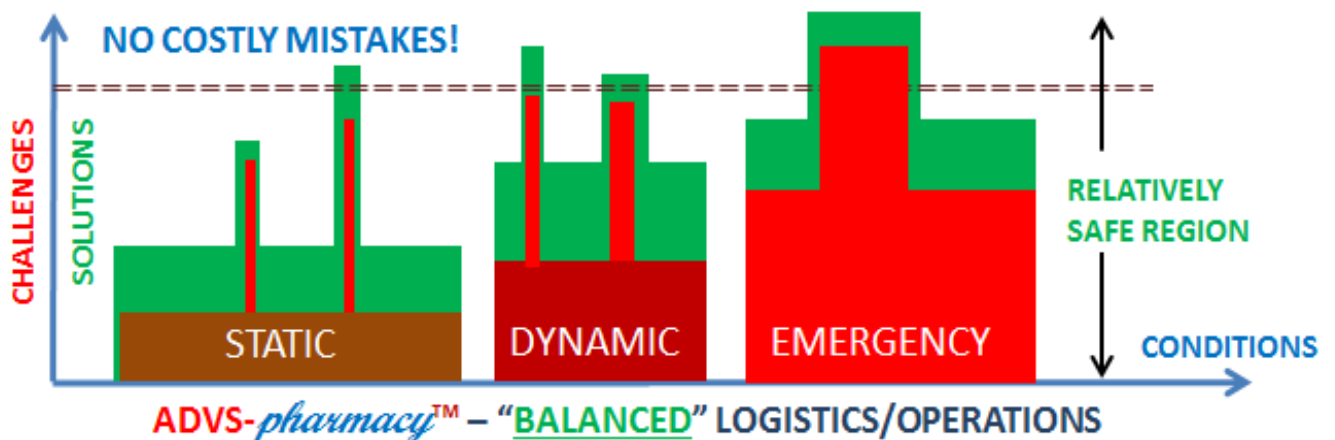
Optimized Pharmacy Operations using
Automatic Distributed Vending System

Я-*pharmacy*™

In contrast to existing Pharmacies, the business based on **ADVS-***pharmacy*™ → will shift majority of risky **CHALLENGES** from each Pharmacy to near-by **ADVS-***pharmacy.central*™ where:

1)   POWER back-up generators will support qualified staff of Pharmacist, equipped with state-of-the-art equipment, to process available raw materials, to provide required medications 24 hours on-site, and via **ADVS-***pharmacy.central mobile*™ delivering Portable Vending Cartridges (**PVC**) to service locations (pharmacies, kiosks), with all medications compliance to **100%** *Factory-sealed Quality*™

2)   Experienced and relatively stable staff of qualified Pharmacist will support required demand for quality workmanship at all times. No outside independent contractors needed to process prescriptions!

3)   All raw and processed materials, including the most in-demand or "classified", will be retained within specifications, including top security and safety, with practically no impact of "outside conditions", such as EMERGENCY, including: weather, fire, break-in, etc.

At each **ADVS-***pharmacy*™, authorized Customers will have 24 hours un-attended access to available medications inside Automatic Vending Modules (**AVM**) protected by *patented dual-enclosure* design, with built-in non-volatile security diagnostics, to retain integrity and **100%** *Factory-sealed Quality*™.
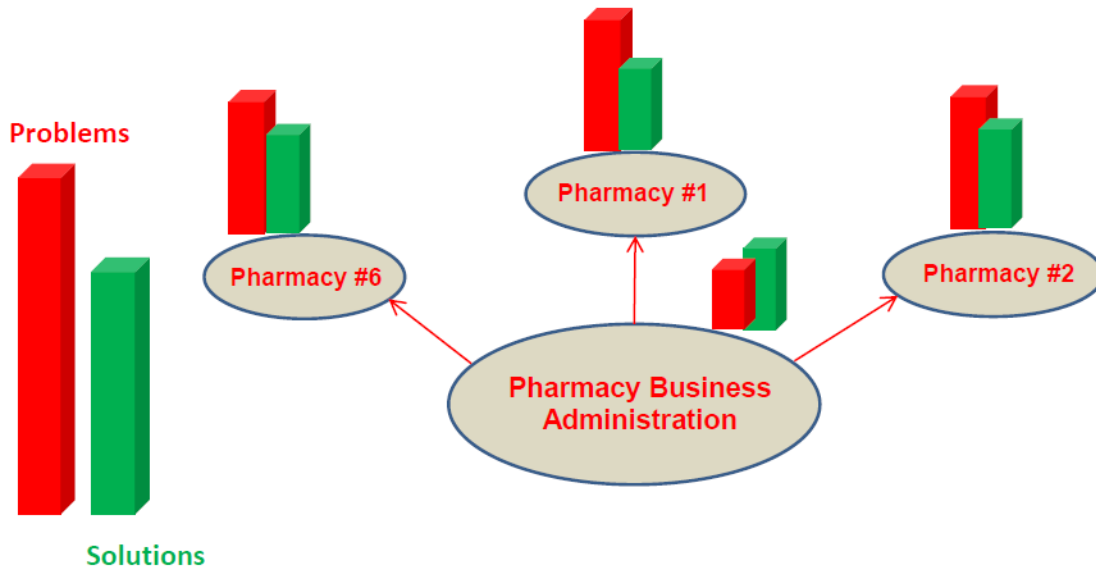

ADVS-*pharmacy*™ – "BALANCED" LOGISTICS/OPERATIONS

ADVS-*pharmacy.central*™, each **ADVS-***pharmacy*™ and **ADVS-***pharmacy.kiosk*™ are all equipped with **SOLUTIONS** to "**OUTPERFORM**" on-site **CHALLENGES** in all stages!

Existing Pharmacy Operations

System is UNBALANCED – Problems dominate the agenda!

Optimized Pharmacy Operations using
Automatic Distributed Vending System

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