# The Future of
# Consumer-Directed Pharmacy Benefits

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**Summary**

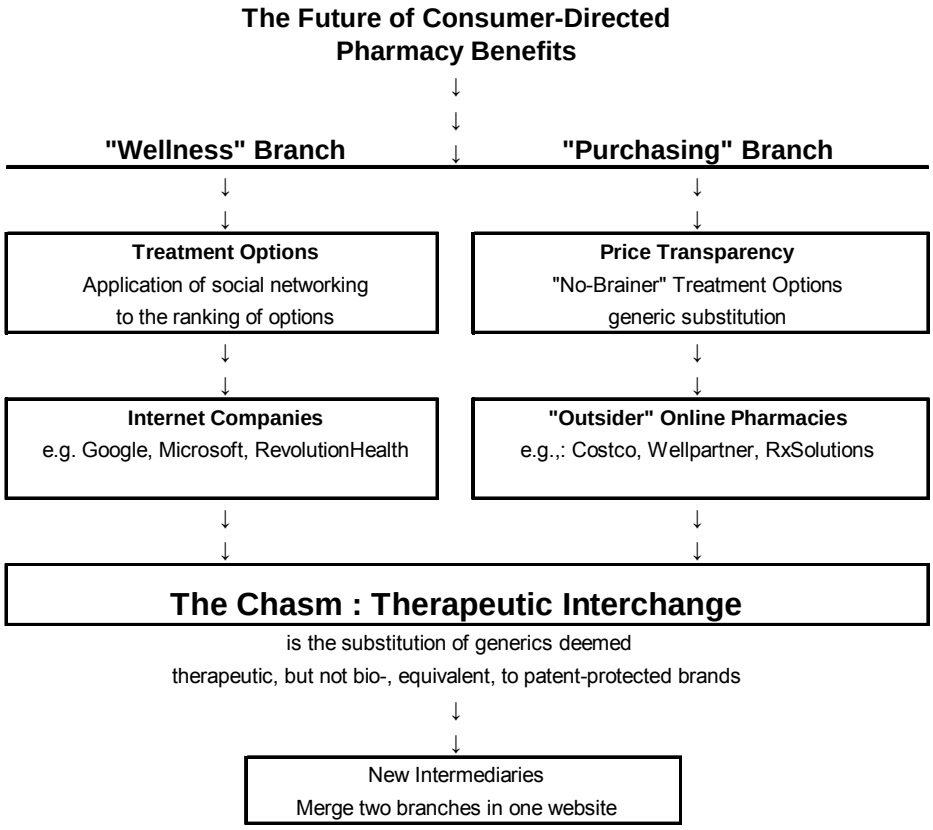
Pharmacy benefits present the best opportunity for consumer-directed healthcare (CDHC) to outperform traditional managed care.

This is due to the fact that drugs are commodity purchases with little quality issues. Also, drug price transparency does not require any government intervention because there is a group of "outsider" pharmacies like Costco showing a willingness to compete on price.

Pharmacy benefits also present the best entry point for new healthcare intermediaries. The role of new intermediaries will be to link user-created "scrapbooks" of health data to rankings of treatment options based on the "wisdom of crowds" and, in turn, to price competitive pharmacies.

The following diagram summarizes our view of the future of consumer-directed pharmacy benefits.




**The Wellness Information Branch**

Consumer-directed healthcare (CDHC) is about presenting consumers with information about price and treatment options so that they can pursue cost-saving opportunities. It is not surprising then that the vanguard this movement is found online. There are actually two basic branches of the CDHC movement. One branch is what we call the wellness information branch while the other is what we call the purchasing information branch.

The wellness information branch traces its roots back to the early 1970s and is marked, in our minds, by the publication of **Our Body Ourselves** in 1973. There are plenty of websites today with information about wellness and treatment options, but few are directly linked up to prices displayed on provider websites.

The wellness information branch can evolve in several fundamentally different directions. One fundamental split will be over the evaluation of treatment options. One branch will feature options ranked by experts. This branch is the domain of traditional healthcare intermediaries – insurance companies with captive pharmacy benefit managers (PBMs) and independent PBMs. The other branch will feature options ranked by *au courant* social networks. This branch will be the domain of new intermediaries.

The other fundamental split will be over the business model chosen by these new intermediaries. The two major options are a fee-based business model, with fees paid by customers or their insurance plan, and an advertising-based business model. There are early signs that an advertising-based business model will dominate. This is not unexpected as the dominant business model for search and information websites today is advertising-based. Furthermore, there are signs that banner ads will dominate. The drugs now featured on television – brand name drugs in blockbuster therapeutic classes facing competition from other brand and generic therapeutic equivalents – will be the very same ones that will dominate online advertising. This includes such drugs as Lipitor, Crestor, Vytorin, Nexium, Lunesta, and Clarinex.

The website developed by the Mayo Clinic, www.mayoclinic.com, is an outstanding example of the treatment options representing the “wisdom of an elite”. The website is free, but the business model is heavily dependent on advertising of brand name “me too” drugs in oligopolistic therapeutic classes. Search for information on insomnia and up pops up advertisement for Lunesta. Search for information how to reduce cholesterol and up pop up ad for Vytorin. These ads are not some minimalist Google-style hyperlink, but full color Flash ads that dominate the right third of the page. While the Mayo Clinic makes it clear that their editorial staff is isolated from marketing pressures, one always must be wary of content supported by advertising.

It is interesting to compare the drug treatment recommendations on the Mayo Clinic website with those presented in a Consumer Reports based on recommendations of the Drug Effectiveness Review Project – a 15 state initiative to help guide Medicaid drug coverage. The Consumer Reports repeatedly

recommends generics and OTC drugs as substitutes for more costly “me too” brands, whereas the Mayo Clinic is non-committal about therapeutic interchange. Compare the recommendations of each site for the proton pump inhibitor therapeutic class:

**Mayo Clinic:** [1]

**Prescription-strength proton pump inhibitors.** These are long-acting and are the most effective medications for suppressing acid production. They're safe and have few side effects for long-term treatment. To prevent possible side effects, such as diarrhea or headaches, your doctor will likely prescribe the lowest effective dose. Prescription-strength proton pump inhibitors include esomeprazole (Nexium), lansoprazole (Prevacid), omeprazole (Prilosec), pantoprazole (Protonix) and rabeprazole (Aciphex).

**Consumer Reports**:[2]

The five available PPI medicines are roughly equal in effectiveness and safety, but differ in cost. One – omeprazole (Prilosec OTC) – is available as a prescription and nonprescription generic drug.

Taking the evidence for effectiveness, safety, cost, and other factors into account, **Prilosec OTC** is our choice as a *Consumer Reports Best Buy Drug* if you need a PPI. You could save $100 to $200 a month by choosing this medicine over more expensive prescription PPIs

Could the differences in recommendations be due to differences in business models?

There is another approach to the display of wellness information and treatment options that does not rely on elites like the Mayo Clinic or PBMs. This approach is based on the idea of “the wisdom of crowds”. It is being championed by several Internet pioneers committed to adapting the latest Web 2.0 tools to helping individuals manage their wellness. These internet companies are prime candidates for becoming new intermediaries between healthcare providers, health insurance plans, and consumers.

It includes Google, led by Adam Bosworth, one of the inventors of XML technology, and now VP of Google Health. He is leading Google’s effort at creating “a better educated patient” through specialized search and the application of “PageRank” algorithms to treatment options all linked to user generated “scrapbooks” of personal medical history.[3]

It includes Microsoft, led by Peter Neupert, founder and former CEO of drugstore.com and now VP for health strategy at Microsoft. Microsoft has recently bought two software companies that have developed

innovative ways to integrate and disseminate patient medical data in different formats.[4] This effort may be viewed as "Neupert's Revenge" – a payback to the Big 3 PBMs for not extending coverage to prescriptions filled by drugstore.com, the company Neupert headed during the heyday of the dot-com era.

While Google's and Microsoft's efforts are still largely under wraps, the efforts of Steve Case, founder of AOL, are ready to roll out now. His latest venture is a company called Revolution Health, which is focused on applying social networking and specialized search based on user-generated ratings of the "trustworthiness" of providers (information and health services).

"Isn't it crazy that we have ratings to help us pick movies, restaurants and hotels," Case wrote in an introductory letter quoted by CNN.com, "but no comparable tools to help evaluate doctors, hospitals and treatments?" [5]

Unfortunately, there are signs that Case's venture will be anything but revolutionary – i.e. challenge the status quo in the healthcare industry. In an interview, Case has been quoted as saying that "we'll accept advertising from a number of industries, including Pharma…" [6] Also, Revolution Health has signed on Medco Health Solutions, one of entrenched Big 3 PBMs, as a strategic partner in developing the pharmacy portion of its website.[7]

**The Purchasing Information Branch**

The other branch of the CDHC movement is focused on providing consumers with information so that they can purchase the most cost-effective treatment. The key pieces of purchasing information are prices, quality, and treatment options. It is not surprising that the vanguard of this movement is also found online.

And it is online pharmacies that are the leaders in healthcare price transparency. No other area of healthcare comes close to the degree of transparency we found in our survey of online pharmacies today.

Furthermore, the trend has occurred quietly without government coercion. This is in stark contract to hospitals and physicians groups who seem only willing to disclose "usual and customary" prices to the public if mandated by law.

While online drug prices today come with a disclaimer about "subject to change without notice", they are real offer prices as opposed to "usual and customer" list prices. They are meaningful as they do not require additional information about quality in order to compare prices offered by different providers.

**Price Transparency as a Threat to the Big 3 PBMs and Chain Drugstores**

Of course, the willingness to display drug prices online is not universal in the drug supply chain. Price transparency is a threat to Big 3 independent PBMs – Medco Health Solutions, Express Scripts, and CVS-Caremark – and to large chain drugstores – Walgreen and CVS-Caremark. This is due to the conflicted nature of their business models, summarized in our papers "Pharmacy Benefit Managers as Conflicted Countervailing Powers" and "The CVS-Caremark Merger and the Coming Preferred Provider War" [8]

The Big 3 PBMs now generate a substantial portion of their gross profits from mail order generics. Their business model is full of cross subsidies where high margins on rebates and mail order generics subsidize low to nil margins on claims processing, disease management, and mail order brands. We have presented the case elsewhere that the price superiority of the captive mail order operations of the Big 3 PBMs is not due to dispensing and procurement scale economies relative to large chain drugstores. [9] PBMs "hold up" retail pharmacy reimbursements because this allows them to offer lower mail order prices without suffering margin erosion.

In turn, the hold-up of retail prescription reimbursements has enabled chain drugstores like Walgreens to engage in "competition by convenience" characterized by aggressive store growth. This aggressive store growth has outpaced the growth of front stores sales, depressing the net profitability of the front store.[10]

Walgreens and CVS can live with this because the lack of front store profitability is covered by the high net profitability of the pharmacy in the back.

Both large chain drugstores and the Big 3 PBMs are now locked into business models that rely on high margin generics subsidizing other businesses. As long as the bulk of prescriptions are covered by traditional insurance plans managed by the Big 3 PBMs, generic prescriptions filled at retail or mail order are protected from price competition. Otherwise, the chain drugstores and the Big 3 PBMs might be forced to abandon their reliance on high margins generics and would be forced to raise prices elsewhere.

While there is universal agreement that consumer-directed healthcare has the potential to lower total costs, the value of that outcome depends on how the cost reductions are achieved. If it achieved through lower unit prices and more cost-effective treatment mix (utilization), then the outcome is positive. If it is achieve through a shift in burden from business to the consumer or through reduced usage, then the outcome is problematic.

There is a growing body of work, both theoretical and applied, suggesting that CDHC will fail to outperform traditional managed care in the area of unit prices and cost-effective treatment mix. However, because of the conflicted nature of the Big 3 PBM business model and the hold up of prices of generic drugs, we believe that the best opportunity for CDHC to outperform traditional manage care is in the area of pharmacy benefits.

**The Current State of Online Pharmacies**

Online pharmacies represent the vanguard of healthcare price transparency. Close followers of healthcare price transparency are oblivious to this development. [11] The majority of sites surveyed allowed access without prior registration. However, CVS, Long's and Wal-Mart did not. The accessible sites gave the consumer a good sense of fill economies by presenting a single page display of prices at various prescription counts (e.g. 30, 60, 90) Most sites only quoted prices for delivery via their in-house mail

order operation. One online pharmacy – Wellpartner, an independent mail order pharmacy based in Portland – also provided consumers with a comparison of their own mail order prices with the typical retail prices paid by 100% cash paying customers. The prices presented below are actual prices taken from five online pharmacies on 3-30-07. It includes the following companies:

**Costco** – a large mass merchant

**RxSolutions** – the captive PBM of PacifiCare that is chartered to go after outside business.

**Wellpartner** – an independent mail order pharmacy

**Drugstore.com** - an independent mail order pharmacy

**Walgreen** – a very large retail drugstore chain with mail order capability.

**List of URLs of Online Pharmacy Survey:**

**Costco:** http://www.costco.com/

**RxSolutions:** http://rxsolutions.com/a/discountrx/discountrx.asp

**Wellpartner:** http://www.wellpartner.com/

**Drugstore.com:** http://www.drugstore.com/default.asp?aid=9225

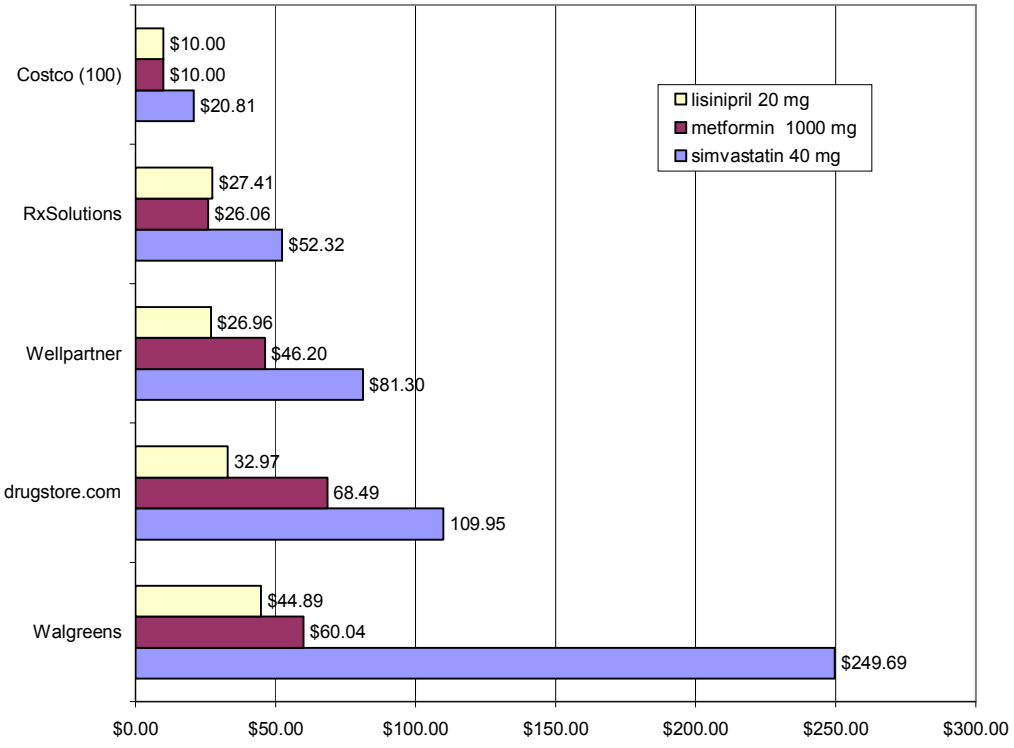
**Walgreens**: http://www.walgreens.com/library/finddrug/druginfosearch.jsp?cf=ln

| **Survey of Online Pharmacies** | | | | | | |
|---|---|---|---|---|---|---|
| **Name** | **Corporate Type** | **accessible online price checker** | **prices displayed** | **change without notice disclaimer** | **display generic substitutes** | **display therapeutic interchange** |
| Costco | mass merchant | yes | actual mail order | yes | yes | ----- |
| RxSolutions | captive mail order | yes | actual mail order | yes | yes | ----- |
| Wellpartner | independent mail order | yes | typical retail / actual mail order | yes | yes | ----- |
| drugstore.com | independent mail order | yes | actual mail order | yes | yes | ----- |
| Walgreen | chain drugstore | yes | actual mail order | yes | yes | ----- |
| | | | | | | |
| CVS | chain drugstore | no | ----- | ----- | ----- | ----- |
| Long's | chain drugstore | no | ----- | ----- | ----- | ----- |
| Target | mass merchant | no | ----- | ----- | ----- | ----- |
| Wal-Mart | mass merchant | no | ----- | ----- | ----- | ----- |

None of the websites represented their prices as firm offer prices as you would find at a typical online store. The price lookup screens were separate from the order entry systems. Costco and Walgreens come closest to standing by their quotes. Wellpartner, drugstore.com and RxSolutions clearly stated that actual purchase prices may vary. What follows is a summary of the price disclaimers found in our survey of online pharmacies: [12]

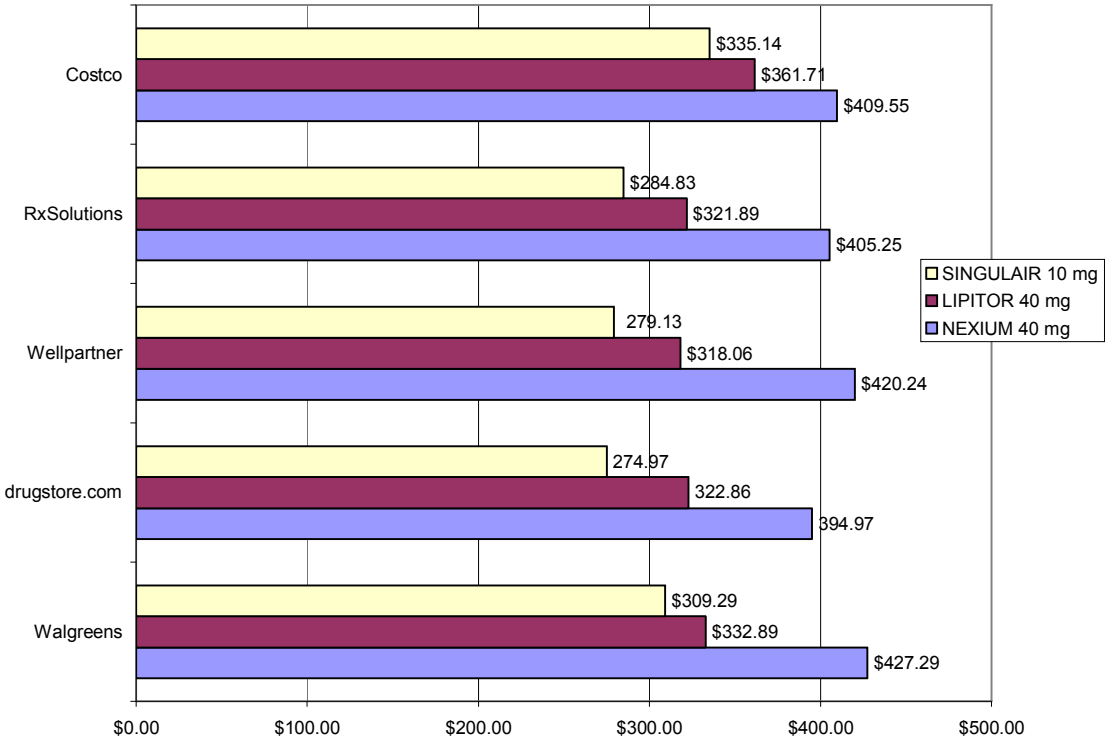
> **Costco**: "The prices listed apply to those prescriptions purchased and mailed from Costco.com. Our pharmacies located in Costco Warehouses nationwide offer pricing consistent with those listed here. Occasionally prices may vary due to local differences in generic product selection or the bulk package size stocked."
>
> **Walgreens:** "The prices listed reflect the full cash purchase price (excluding shipping) for prescriptions purchased from Walgreens.com and shipped to you."
>
> **Wellpartner**: "Prices show the difference between our retail price and the price available with WellpartnerPLUS, a prescription savings program open to registered members… Prices are also subject to change without notice."
>
> **Drugstore.com**: "These are self-pay prices for drugstore.com mail-order delivery and do not take into account any discounts or insurance coverage that you may have. Actual prices are calculated at the time of your order."
>
> **RxSolutions:** "Pricing is only for medications available through the Prescriptions Solutions Mail Service Pharmacy. Due to market conditions, prices are subject to change. You will be responsible for the actual price of the medication when it is shipped."

**Online Price for Mail Order Generic Rx at 90/100 Count**




**Source Date: 3-30-07**

**Online Price for Mail Order Brand Rx at 90 Count**




**Source Date: 3-30-07**

Judged by sheer purchasing power, one might expect that Walgreens would offer the lowest on-line market prices. But, their business model is based on a very profitable pharmacy business subsidizing a front store that has low to nil net profitability. The other companies, while smaller, do not depend on high margin generics subsidizing other lines. The results are a dramatic confounding of the adage that consumers are best served by purchasing drugs through large intermediaries.

The results also suggest that large drugstore chains like Walgreens are threatened by the consumer-directed healthcare movement. Price transparency, so much a part of this movement, exposes the high prices drugstore chains have to charge for generic prescriptions to make up for deficiencies in their front store. CDHC brings the retail pharmacy business a step closer to real price competition and this has the potential to blow apart the cross-subsidies that have been built into the drugstore business model over the last fifteen years.

**The Display of Generic Substitutes**

There are two types of treatment options that might be displayed online: generic substitution and therapeutic interchange.

Generic substitution is a substitution of a generic drug that is bio-equivalent to a brand drug that has lost its patent protection. It varies only in color, shape, and binding agents. After a brand loses it patent protection, the original manufacturer will market the brand at a much lower price, but will never lower it to match new generics on the market as there is still value in the "brand name". The off-patent brand still is priced at 3 to 4 times the price of bio-equivalent generics.

Unless a physician indicates that a prescription be "dispensed as written", it is legal for pharmacists in many states to substitute automatically a generic of an off-patent brand. Most traditional pharmacy benefit plans reinforce this switch by making it a requirement. Today within weeks after losing patent protection, the generic substitution rate exceeds 95%.

If an online pharmacy displayed any prices at all, it always included displays of cost-savings opportunities through generic substitution. This is as expected as there is little liability risk in such displays. Still, there are always disclaimers to "consult with your physician" attached to displays of generic substitution.

It is reasonable to assume that all savings opportunities via generic substitution will be mandated as well in CDHC plans, rather than left up to enrollee discretion. Thus, online displays of generic substitution are unlikely to contribution to ***additional*** cost-savings.

The display below is typical of the cost-savings opportunities now displayed online. We used actual on-line prices of Costco, a mass-merchant that does not depend on its pharmacy to subsidize other operations.

| Therapeutic Class: Statins | package size | | |
|---|---|---|---|
| Name (manufacturer) | 30 | 50 | 100 |
| ZOCOR 20 MG TABLET (MSD) | $141.38 | $233.12 | $465.46 |
| **Generic Substitution** | | | |
| simvastatin 20 MG TABLET (AUR) | $10.66 | $14.38 | $23.14 |

| Therapeutic Class: SSRIs | package size | | |
|---|---|---|---|
| Name (manufacturer) | 30 | 50 | 100 |
| PROZAC 10 MG PULVULE (DIS) | $139.16 | $229.30 | $457.51 |
| **Generic Substitution** | | | |
| fluoxetine 10 MG CAPSULE (SAN) | $5.00 | $5.74 | $10.00 |

| Therapeutic Class: SSRIs | package size | | |
|---|---|---|---|
| Name (manufacturer) | 30 | 50 | 100 |
| PAXIL 40 MG TABLET (GSE) | $101.09 | $199.28 | $296.17 |
| **Generic Substitution** | | | |
| paroxetine hcl 40 MG TABLET(APO) | $19.45 | $33.59 | $48.00 |

| Therapeutic Class: ACE Inhibitors | package size | | |
|---|---|---|---|
| Name (manufacturer) | 30 | 50 | 100 |
| ZESTRIL 10 MG TABLET (ZEN) | $39.24 | $63.31 | $123.23 |
| **Generic Substitution** | | | |
| lisinipril 10 MG TABLET (IVX) | $5.00 | $6.03 | $10.00 |

| Therapeutic Class: ACE Inhibitors | package size | | |
|---|---|---|---|
| Name (manufacturer) | 30 | 50 | 100 |
| VASOTEC 10 MG TABLET (BIO) | $42.98 | $70.07 | $137.95 |
| **Generic Substitution** | | | |
| enalapril maleate 10 MG TABLET (RAN) | $5.00 | $5.34 | $10.00 |

Source: www.costco.com, 3-30-07

**The Hypothetical Display of Therapeutic Interchange**

Therapeutic interchange involves a switch from a costly on-patent brand drug to another drug that deemed to be a therapeutic equivalent, but not bio-equivalent. The less costly drug could be a prescription generic, an OTC drug, or an herbal drug. While generic substitution is a "no-brainer" choice, therapeutic interchange should only be undertaken with the approval of a prescribing physician. Nevertheless, there is a large body of evidence in support of drugs deemed therapeutically equivalent to blockbuster "me-to" drugs like Lipitor, Nexium, Celebrex, and Clarinex.

We have presented the case the Big 3 PBMs receive rebates from Pharma for abstaining from therapeutic interchange of blockbuster "me-too" brand drugs.[13] At the same time, no online pharmacy in our survey has taken upon itself to present consumers with treatment options representing therapeutic interchange. This "chasm" presents a cost-saving opportunity for CDHC entities. This could be traditional managed care entities without a conflicted business model—from large integrated insurance companies to small startup PBM with fee-based business models. It could be new intermediaries.

The cost-saving potential of therapeutic interchange is concentrated in a few therapeutic classes as evidenced by recent Express Scripts report. The number of displays needed to make a big difference is quite limited. The percentage saved per prescription exceed 90% as exemplified in the hypothetical display presented below using prices taken from Costco's online pharmacy.

**Exhibit 2: Potential Savings Through Generic-to-Brand Therapeutic Interchange**

| Therapeutic Class | Actual 2004 Generic Dispensing Rate | Target Generic Dispensing Rate | Potential Savings if Target is Met |
|---|---|---|---|
| Gastrointestinal | 31% | 95% | $5.4 Billion |
| Anti-cholesterol | 7% | 70% | $5.1 Billion |
| Anti-depressants | 41% | 75% | $3.2 Billion |
| NSAIDs | 47% | 85% | $3.9 Billion |
| Anti-hypertension | 48% | 75% | $2.0 Billion |
| Calcium channel blockers | 43% | 90% | $0.5 Billion |
| Total Potential Saving | | | $20.0 Billion |

Source: Express Scripts, Inc, 2004 Generic Drug Usage Report

**Hypothetical Displays of Savings From Therapeutic Interchange**

| **Therapeutic Class: Cox-II NSAIDs** | package size | | |
|---|---|---|---|
| Name (manufacturer) | 30 | 50 | 100 |
| CELEBREX 400 MG CAPSULE (SEA) | $276.01 | $545.10 | $810.17 |
| **Consult with You Physician about this Therapeutic Interchange** | | | |
| ibuprofen 400 MG TABLET (PAR) | $6.12 | $7.03 | $8.84 |
| narproxen 500 MG TABLET (TEV) | $5.00 | $6.10 | $10.00 |

| **Therapeutic Class: Statins** | package size | | |
|---|---|---|---|
| Name (manufacturer) | 30 | 50 | 100 |
| LIPITOR 20 MG TABLET (P-D) | $110.54 | $182.04 | $360.60 |
| **Consult with You Physician about this Therapeutic Interchange** | | | |
| simvastatin 20 MG TABLET (AUR) | $10.66 | $14.38 | $23.14 |

| **Therapeutic Class : Proton Pump Inhibitors** | package size | | |
|---|---|---|---|
| Name (manufacturer) | 30 | 60 | 90 |
| NEXIUM 20 MG CAPSULE (AST) | $138.44 | $273.49 | $408.54 |
| **Consult with You Physician about this Therapeutic Interchange** | | | |
| omeprazole 20 MG CAPSULE DR(KRE) | $21.33 | $37.85 | $54.56 |

Source: www.costco.com, 3-30-07

**Therapeutic Interchange Involving OTC Drugs**

Most statistics of drug usage takes into account only *prescription* drugs. If a technique like raising co-payments or moving to a CDHC plan causes usage to decline, the result is deemed problematic by researchers.

But, recently there have been two prominent instances of drugs in top 10 selling therapeutic classes that have become available over-the-counter (OTC) after losing patent protection. One instance occurred in the anti-ulcer therapeutic class where Prilosec become available as Prilosec OTC and various OTC versions of omeprazole, the generic version of Prilosec. The other instance was in the 2nd generation anti-histamine class where Claritin became available as OTC Claritin and various OTC versions of loratadine, the generic version of Claritin.

There is one additional therapeutic class that should be mentioned. That is anti-arthritis COX II inhibitor class dominated by brand Celebrex. While there are no other COX II inhibitors that have lost patent protection, there are OTC generics that are generally accepted therapeutic equivalents – ibuprofen and naproxen.

A broader measure of usage is needed in studies where switches to OTC drugs might be significant. We believe this is the case in any study of a consumer-directed pharmacy benefits. [14]

The following table is a hypothetical display of cost saving potential of therapeutic interchange involving non-prescription OTC drugs. It is doubtful that anything like this is made available to enrollees in consumer-directed plans managed by traditional PBMs. But, to give consumer-directed plans a fair chance to succeed, such a display should be offered.

**Hypothetical Displays of Non-Prescription Therapeutic Interchange**

| **Therapeutic Class: PPIs** | Count |
|---|---|
| Name Brand Prescription | 30 |
| NEXIUM 20 MG CAPSULE | $156.99 |
| **Consult with Your Physician about this Non-prescription pharmaceutical alternative** | |
| Prilosec OTC (omeprazole) 20 mg TAB | $21.99 |

| **Therapeutic class: 2nd generation antihistamines** | Count |
|---|---|
| Name Brand Prescription | 90 |
| CLARINEX 5 mg TAB | $274.59 |
| **Consult with Your Physician about this Non-prescription pharmaceutical alternative** | |
| Loratadine OTC 10 mg TAB | $29.99 |

| **Therapeutic Class: Anti-arthritis** | Count |
|---|---|
| Name Brand Prescription | 90 |
| CELEBREX 200 MG CAPSULE | $274.69 |
| **Consult with You Physician about this Non-prescription pharmaceutical alternative** | |
| ibuprofen 200 MG TAB | $6.99 |
| Aleve (narproxen sodium) 220 MG TAB | $9.99 |

**Source:** www.walgreens.com/library/finddrug/druginfosearch.jsp?cf=ln, 5-3-07

**Therapeutic Interchange Involving Herbal Alternatives**

Enrollees in consumer-directed plans are highly motivated to seek out alternatives to costly prescription brand drugs. Managers of such plans should consider presenting enrollees with price comparisons involving herbal alternatives to brand drugs. While this might understandably not be something that an existing PBM might consider, nevertheless well-respected health experts like the Mayo Clinic and Harvard Medical School do discuss herbal alternatives to traditional drugs on their websites.

We expect that if treatment options are ranked by Web 2.0 social networks, the "wisdom of crowds" will almost assuredly rank herbal drugs as a viable treatment options. Below is a hypothetical display of savings opportunities available through therapeutic interchange involving herbal drugs. As in the case of OTC drugs, a decline in usage by CDHP enrollees might not be so problematic if it involves switches displayed below.

**Hypothetical Displays of Herbal Therapeutic Interchange**

| **Therapeutic Class: Insomnia** | Count |
|---|---|
| Name Brand Prescription | 90 |
| AMBIEN 5 MG TAB | $399.49 |
| LUNESTA 3 MG TAB | $401.89 |
| SONATA 5 MG CAP | $359.89 |
| ROZEREM 8 MG TAB | $332.89 |
| **Consult with Your Physician about this Herbal alternative** | |
| valerian 400 MG TAB | $4.99 |

| **Therapeutic class: menopause** | Count |
|---|---|
| Name Brand Prescription | 30 |
| PREMARIN .3 MG TAB | $46.99 |
| **Consult with Your Physician about this Herbal alternative** | |
| Estroven (soy and black cohosh) | $12.99 |

**Source:** www.walgreens.com/library/finddrug/druginfosearch.jsp?cf=ln, 5-3-07

**Estimating the Cost-Saving Potential of Consumer-Directed Pharmacy Benefits**

Healthcare costs can be viewed as the product of "U*U*U" – unit prices * utilization * usage -- where utilization is treatment option utilized, and usage is the frequency, or persistence, of treatment. There is concern that CDHC works mostly to reduce the 3rd U – persistence of treatment, which is a dubious benefit. If persistence of treatment is set aside, there is a growing believe that CDHC could actual result in higher unit prices and less cost-effective treatments to be chosen. The concern comes from a more sophisticated view of price transparency and skepticism about the potential to guide the consumer through the labyrinth of options involved in treating any given condition.

Since the initial outburst of enthusiasm for CDHC, there has arisen a more careful consideration of what might be lost by replacing managed care with consumerism. One valid area of concern is the loss of managed care's ability to use it purchasing power to countervail providers and negotiate lower unit prices. Another valid area of concern is the potential of online price transparency to facilitate tacit collusion among sellers resulting in higher, not lower market prices.[15]

While these concerns are valid, we have presented that case that they are minimized when it comes to outpatient drug prescriptions. Drug price transparency has to potential to break-up tacit collusion in the drug supply chain, not facilitate it. While there is always a debate among scientists about therapeutic interchange, there are a number of generally accepted options for substituting less expensive generics drugs for brand drugs.

Estimates of the effect CDHC on persistence of use, and any shift in employer contribution, are beyond the scope of this paper. Most agree that the benefits derived from reduce usage and increased share are dubious, although one must be open to usage statistics that include switches to over-the-counter drugs and, even herbal drugs like valerian and Estroven.

**Cost-Saving From Drug Price Transparency**

In our paper “Pharmacy Benefit Managers as Conflicted Countervailing Power”, we summarized our case for a PBM holdup of generic drug prices. The market for generic drugs is characterized by high list prices coupled by steep charge-back credits posted to large drugstore chains accounts at distributors Generic drug manufacturers negotiate volume discount deals with drugstores, as opposed to PBMs ,because only dispensing pharmacies have the power to choose from an array of suppliers of perfect substitutes.

It hard for insurance companies to know what are the true market prices for generics because the steep discounts off list prices are proprietary information. This gives PBMs some discretion in negotiating reimbursements with retail pharmacies allowing shift in their business model from a dependency on retained rebates to a dependency on mail order gross profits. Now, the Big 3 PBMs find it in their own self interest to holdup retail prices for generics so that they can price their mail order operations competitively without margin erosion.

Online price transparency has the potential to breakup the PBM stranglehold on generic drug pricing. The table below presents our estimate of cost saving potential of drug price transparency, one component of CDHC. We assume that it will reduce generic drug prices by 25% and have no impact on brand drug prices. We also believe that drug price transparency will cause the mail order channel to gain a 20% market share for out-patient drug fulfillment.

**Cost Saving From Therapeutic Interchange**

Consumer-directed healthcare will have an impact on the unit prices of brand drugs, but it won’t be through price transparency, but therapeutic interchange. Brand drugs for retailers are a derived demand. They have no discretionary in affecting demand for a particular brand drug. On the other hand, PBMs can influence the demand for brand drugs that face competition via therapeutic interchange. As a result, Pharma only negotiates brand rebates with PBMs, and not retail pharmacies.

The Big 3 PBMs receive rebates from Pharma for abstaining from therapeutic interchange of generics that are therapeutically equivalent to more expensive blockbuster "me too" drugs like Lipitor and Nexium. The power to switch prescriptions by PBMs is greatly reduced in consumer-directed plans. They can no longer threaten Pharma with adverse switches unless paid rebates to abstain.

We have stated that case before that we expect that CDHC to generate no additional cost saving through generic substitution. On the other hand, it is reasonable to expect that consumer-direct pharmacy benefits to generate a 10 percentage point increase in the generic dispensing rate strictly through therapeutic interchange. Based on an Express Scripts study cited in the table below, this translates into a 10% reduction in overall drug spend.[16]

We offer another Express Scripts study in support of the cost-saving potential of therapeutic interchange. Total brand drug spending today runs about $200 Billion. Express Scripts recently completed a study of the potential savings that could be obtained if all potential brand-to-generic therapeutic interchange were realized. [17] The table presented earlier summarized Express Scripts' estimate of the potential for cost-saving switches to generics. The $20 Billion estimate comes in at 10% of total drug spend.

Of course, the cost-savings generated by unbiased display of therapeutic interchange will be partially offset by lower rebates received from Pharma. Based on Medco disclosures, we have estimated that its gross rebates received in 3Q2005 totaled 10.1% of its total brand spend.[18] It is reasonable to expect any unbiased CDHC plan to incur a 50% reduction in brand rebates received resulting in an overall 3.5% increase in drug costs.

In sum, we estimate the cost saving potential of consumer-directed pharmacy benefits to be around 15.6% -- 9.1% from price transparency, an additional 10% from therapeutic interchange, with a 3.5% offset from lower brand drug rebates. This does not include any additional saving from reduced usage, including switches to OTC and herbal drugs. The table below presents the full derivation of our estimate.

| Estimate of Cost-Saving Potential of Consumer Directed Pharmacy Benefits | | | | |
|---|---|---|---|---|
| | (measured as a % of total drug spend) | | | |
| | **Generic** | **Brand** | **Total Savings** | **Derivation** |
| **Share of Spend** | **30.0%** | **70.0%** | | |
| **Due to Price Transparency** | | | | |
| Increased Price Competition | -25.0% | 0.0% | | assumption |
| 20% of spend switch to mail order | -1.1% | -1.9% | | 20% of mail order price superiority |
| Change in Unit Prices | -26.1% | -1.9% | | summation |
| **Cost Saving Due to Price Transparency** | -7.8% | -1.3% | -9.1% | summation weighted by share |
| **Due to Display of Treatment Options** | | | | |
| Generic Substitution | | | 0.0% | assumption |
| Therapeutic Interchange | | | -10.0% | 10 point increase in generic utilization rate |
| Rebate receipts | | | 3.5% | 50% loss of rebates weighted by brand share |
| **Cost Savings Due to Display of Treatment Options** | | | -6.5% | summation |
| **Sources:** | | | **-15.6%** | summation |

GAO Data on mail order price superiority: generics 5.3%, brands 9.5%

U.S. General Accounting Office, *Federal Employee Health Benefits: Effects of Using Pharmacy Benefit Managers.* Washington, D.C.: Pub. No. GAO-03-196; 2003: p.11

Therapeutic Interchange

Medco reported a 55% generic utilization rate for 2006
http://www.medco.com/medco/corporate/home.jsp?ltSess=y&articleID=CorpAlertNewgenerics
Assume CDHC achieves a 10 point increase through therapeutic interchange
Use Express Scripts finding that every 1 % point increase in the generic utilization rate results in a 1 % point decline in total drug spend.
Express Scripts, Inc., "Geographic Variation in Generic Fill Rate"
Available at http://www.express-scripts.com/ourcompany/news/outcomesresearch/onlinepublications/

Rebate receipts

Medco gross rebate receipts as % of reimbursement = 10.1%
LW Abrams, "Quantifying Medco's Business Model, " September 2005 available at www.nu-retail.com

**The Vanguard of Consumer-Directed Pharmacy Benefits**

The vanguard of consumer-directed pharmacy benefits will be those companies whose business models are not threatened by the display of therapeutic interchange and the display of free market prices for prescription drugs. The list includes large, integrated insurance companies with captive mail order operations. At the other end, the list includes small startup PBMs whose business model is fee-based, rather than margin-based and a host of specialized pharmacy service providers. Finally, the list includes new healthcare intermediaries with expertise in specialized search and the use of social networks to rank options.

The vanguard does not include the Big 3 PBMs – Medco, Express Scripts, and CVS-Caremark -- or the large chain drugstores – Walgreens, CVS-Caremark, Rite-Aid.

It should be noted that current stance of the chain drugstores toward CDHC is “bipolar”, an appropriate pharmaceutical metaphor. Drugstores represent the vanguard of the retail health clinic movement and seem very open to price transparency in that area. At the same, the drugstore chains seem resistant to drug price transparency, especially generics, because they know that this will expose their dependency on high margin generics.

Right now, the only difference between chain drugstores and “dime store dinosaurs” are those little 200 square foot holes-in-the-wall in that back that generate 70% of sales and virtually 100% of the net profits. Even among chain drugstore executives, there is a sense that the cross subsidies in the chain drugstore business model cannot continue forever. We have viewed CVS’s acquisition of Caremark as an attempt to transition the chain from an era of “competition by convenience” to an era of “competition by price”.

But, what happens to the front store when a price competitive pharmacy is not longer able to cover the profitability deficiency in the front store? The business model of coupling a front store of sundry items with a pharmacy --conceived of 84 years ago by Charles Walgreen when he asked his wife Myrtle to make soup and sandwiches to sell to pharmacy customers during lunch hours -- is vulnerable. There is a

way out. We see the “chain drugstore of the future” as the marriage of a price competitive pharmacy in the back with retail clinics on the sides and a Whole Foods style “wellness” midsection replete with knowledgeable associates roaming the isles. Stores are smaller, fewer, but better merchandised. The convenience business that drugstore chains drop is picked up by supermarket chains, mass merchants, and 7-11 type stores.

Theoretically, the vanguard of consumer-directed pharmacy benefits should include major mass merchants and grocery chains because their pharmacies are not dependent on high margins on generics subsidizing other businesses. However, we have included only Costco on our list as Costco has been the only entity from this group that currently offers online price transparency. We are puzzled why Wal-Mart and Target have yet to offer full online price transparency even though they have generated a lot of publicity about their $4/ generic prescription program.

We are also miffed why none of the pharmacies of the major supermarket chains like Kroger, SuperValu, or Safeway has yet to implement price transparency online. However, a Consumer Reports survey of “cash only” prices for a bundle of popular generic drug prescriptions indicated that supermarket pharmacies are not price competitive.[19] For some reason other than the need to subsidize other businesses, supermarket chains choose not to price generics competitively. The Consumer Reports survey also confirms the lack of price competitiveness of chain drugstores.

| Consumer Reports Survey of Generic Rx Prices | |
|---|---|
| Retailer Type | Median "Cash-Only" Price for a Bundle of 5 Generic Rx @ 30 count |
| Mass Merchants | $105 |
| Independent Drugstores | $121 |
| Chain Supermarkets | $138 |
| Chain Drugstores | $157 |

Generics in Bundle:
fluoxetine, lisinipril, lovastatin, metformin, wafarin

Available at:
http://www.consumerreportsbestbuydrugs.org/PDFs/BestPrice-FINAL.pdf
Survey Taken: 6/29/06 - 8/3/06

The only reservation we have for the integrated insurance companies is their willingness to expose their captive mail order operations to an open market for prescriptions. There may be a tendency to protect their investment by limiting choice of mail order fulfillment to their captive operations.

Finally, we have a concern about the dependency of the vanguard of consumer-directed pharmacy benefits on SXC Health Solutions to provide claims processing, the real “heavy-lifting” of pharmacy benefits management. SXC Health Solutions already is the key enabler to startup PBMs like Envision and Innoviant. It is the key enabler of a trend by self-insured private and public plans to drop one of the Big 3 PBMs and to “disintegrate” PBMs functions by carving-in benefit management while contracting out for the capital intensive functions of claims processing and mail order fulfillment.[20] If SXC Health Solutions’ were to be acquired by a traditional healthcare claims processor like Emdeon or Allscripts, its freedom to support up-start entities might be compromised.

The follow is a list of who we think is vanguard of consumer-directed pharmacy benefits.

| The Vanguard of Consumer-Directed Pharmacy Benefits | | Treatment Options | | | Systems Integration | | Rx Prices | |
|---|---|---|---|---|---|---|---|---|
| **Service Providers** | **Insurance** | **Web 2.0** | **Elite** | **User Interface** | **Price & Rebate Negotiations** | **Claims Processing** | **Mail Order** | **Retail** |
| **Insurance Co Offering CDHP** | | | | | | | | |
| Aetna | x | | x | x | x | x | x | |
| BCBS / Prime | x | | x | x | x | x | x | |
| CIGNA / Choicelinx | x | | x | x | x | x | x | |
| Pacificare/Rx Solutions | x | | x | x | x | x | x | |
| UHC / Definity Health | x | | x | x | x | x | x | |
| Wellpoint / Lumenos | x | | x | x | x | x | x | |
| **Self Insured Plans** | x | | | | | | | |
| **Internet Companies** | | | | | | | | |
| Google | | x | | x | | | | |
| Microsoft | | x | | x | | | | |
| Revolution Health | | x | | x | | | | |
| Mayo Clinic | | | x | | | | | |
| **Small PBAs / PBM** | | | | | | | | |
| Envision | | | x | x | x | | | |
| Innoviant | | | x | x | x | | | |
| **Pharmacy Application Service Providers** | | | | | | | | |
| SXC Health Solutions | | | | x | x | x | | |
| RxEOB | | | | x | | | | |
| **Mass Merchants** | | | | | | | | |
| Costco | | | | | | | x | x |
| **Independent Mail Order Pharmacies** | | | | | | | | |
| Wellpartner | | | | | | | x | |
| drugstore.com | | | | | | | x | |

**The Role of New Intermediaries in Pharmacy Benefits**

There is a sense among high level management consulting firms that consumer-directed healthcare presents an opportunity for new intermediaries to emerge. Consider the following quote from an insightful paper by consultants at Booz Allen Hamilton on "Healthcare's Retail Solution":[19]

> The players that have traditionally held intermediary roles — employers, government, and health plans — do not inspire trust in consumers, nor do they answer all the consumers' needs. The new intermediaries will identify consumer needs and steer the supply side to answer them. Further, they will catalyze change as suppliers' inadequacies become more obvious.

In this section, we will present the case that consumer-directed pharmacy benefits represent a good entry point for new healthcare intermediaries and outline how they might function.

Healthcare intermediaries come between healthcare providers -- hospitals, physician groups, and pharmacies – and employees covered by healthcare plans. Traditionally, consumers have been covered by defined benefits plans whose management requires expertise in insurance. Consumer-directed healthcare is headed toward defined contribution plans with a catastrophic insurance overlay. Thus, traditional insurance companies loose much of their competitive advantage when it comes to managing consumer-directed plans. Also, healthcare intermediaries were once thought to need sufficient scale in order to negotiate lower prices with providers. But, consumers have bulked at restrictive preferred provider networks and so size is not longer viewed as a competitive advantage for healthcare intermediaries.

Consumer-directed healthcare puts a premium on the display of information necessary to make good healthcare choices. Information gathering, dissemination and the ranking of options is exactly what the giants of the Internet – Google, Microsoft, Yahoo, and Amazon --do best. These are prime candidates for new healthcare intermediaries.

.

There are several reasons why pharmacy benefits present the best entry point for new healthcare intermediaries:

(1) Quality is not an issue. No need for controversial evaluations.

(2) Size is not an issue. No need for scale to outperform the "conflicted" countervailing power of the Big 3 PBMs. Just open up a space for the free market to work.

(3) Price transparency is not an issue. Just link up with "outsider" pharmacies that are ready and willing to compete on price.

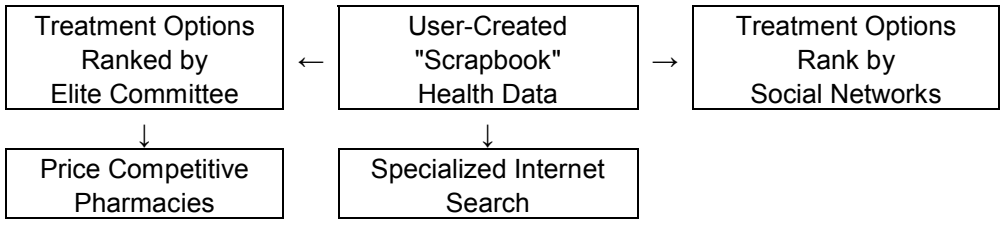
(4) .Drug treatment options are relatively simple compared to medical treatment options.

The mission would be to merge information about treatment options with prices offered by online pharmacies. Currently, the only treatment option offered by online pharmacies is generic substitution. This presents a tremendous opportunity for new intermediaries "to cross the chasm" and offer consumers information about therapeutic interchange – treatment options involving the substitution of generic drugs, OTC drugs, and herbal drugs deemed therapeutically equivalent to costly brand drugs.

There is a good reason why this "chasm" currently exists. New healthcare intermediaries should carefully consider the consequences of presenting consumers with displays of drugs which are deemed therapeutic equivalents to patent-protected brand drugs. All kinds of safeguards should be built into the website. Disclaimers about consulting with your physician should be posted prominently. All postings should be delayed until reviewed by responsible parties.

We actual believe that it would be prudent to have a dual system of ranking of treatment options. The purchasing section should link pharmacy order entry systems to treatment options chosen by an elite PBM-like P&T Committee. It should concentrate on displays of generic prescription and OTC drugs that therapeutic equivalents to "me-too" brand drugs in a few selected therapeutic classes: Statins, Proton Pump Inhibitors, Cox II inhibitors, and 2$^{nd}$ generation anti-histamines.

A separate section not directly linked to order entry systems should concentrate on wellness and treatment options not normally treated with prescription drugs like colds, minor aches and pains, weight-loss, mild insomnia, menopause, and pre-menstrual cramps. This is where active participation of individuals in social networks might actually produce better results than passive reception of advice from some elite group. The dual ranking system plus specialized internet search could all be tied together by a user-create "scrapbook" of health data, a module reportedly under development by Google.[20] The diagram below summarized our view on the links between modules of a new intermediary website.




At one time we believed that to outperform the Big 3 PBMs, new healthcare intermediaries has to take an active role in negotiating prices with pharmacies and rebates with Pharma. Knowing that the Internet companies might become new healthcare intermediaries, we envisioned that such companies would automate negotiations using reverse auctions. We now think that simply creating a space for those who want to compete on price will generate enough savings to be noticeable. But, breaking up the Big 3 PBM stranglehold on generic drug pricing creates a one shot, short term gain. Eventually, new intermediaries will have to become countervailing powers to the drug supply chain and use devices like reverse auctions or preferred provider networks to make a long lasting impact on the trend in prescription drug costs.

**Notes**

(1) The Mayo Clinic recommendation for proton pump inhibitors is available at http://www.mayoclinic.com/health/gerd/DS00967/DSECTION=8

(2) The Consumer Reports recommendation for proton pump inhibitors is available at http://www.consumerreportsbestbuydrugs.org/drugreport_DR_Prop.shtml

(3) "Healthcare Information Matters," November 30, 2006 posted by Adam Bosworth, VP Google Available at http://googleblog.blogspot.com/2006/11/health-care-information-matters.html

(4) "Microsoft to Buy Health Information Search Engine," New York Times, February 27, 2007 http://www.nytimes.com/2007/02/27/technology/27soft.html?ex=1330232400&en=58bf4631d54e82a7&ei=5089&partner=rssyahoo&emc=rss

(5) "Healthcare 2.0 ?" January 23, 2007 Available at http://www.innosight.com/blog/index.php?/archives/81-Healthcare-2.0.

(6) Quote by Steven Case in CDHC Magazine. Available at http://www.cdhcsolutionsmag.com/archives/2007/07-MayJun/CDHC_MayJun07-RevolHealth.pdf

(7) Medco Press Release, May 23, 2007, Available at http://phx.corporate-ir.net/phoenix.zhtml?c=131268&p=irol-newsArticle&ID=1005952&highlight=

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(9) LW Abrams, "Exclusionary Practices in the Mail Order Pharmacy Market," September 2005, Available at http://www.nu-retail.com

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(11) Health 2.0 Wiki, Websites Displaying Healthcare Price Transparency, Available at http://health20.org/wiki/Transparency

(12) **Price Disclaimers**

http://www.walgreens.com/library/finddrug/druginfosearch.jsp;jsessionid=EKYFZR33JTBGECSJY2ZHNDQKJHDTE3MK

http://www.rxsolutions.com/a/discountrx/discountrx.asp

http://www.wellpartner.com/main/PriceCheck.jsp

https://www.myrxhealth.com/MyRxHealth/DrugCostEstimateAction.do?ACTOR=VISITOR&SSOSESSION=null&id=4513&name=Lipitor&gpi=

http://www.costco.com/Pharmacy/frameset.asp?trg=HCFrame.asp&hcban=Banner.asp&hctar=finddrugs.asp&catid=678&fromscript=1&Article=pricing%20information&log=

http://www.drugstore.com/pharmacy/prices/drugprice.asp?ndc=00093715256&trx=1Z5006

(13) LW Abrams, “The Effect of Corporate Structure on Formulary Design: The Case of Large Insurance Companies, “Poster Presentation Paper, ISPOR 10th Annual International Meeting, May 2005. Available at http://www.nu-retail.com

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(15) Paul Ginsberg, “Shopping for Price in Medical Care, “Health Affairs 26, no. 1 (2007) w 208-w216 http://content.healthaffairs.org/cgi/reprint/26/2/w208?ijkey=wkln/qLZb4plc&keytype=ref&siteid=healthaff

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I have not received any remuneration for this paper. I own 200 shares of SXC Health Solutions, a company cited in this paper.

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