Essential Facts Yielded from Population Health Management Analysis

1. Based on the amount paid, there was a $19,778,32 reduction in overall medical expenditures for the PSE & ASE populations combined, from 2013-2014

2. Based on the amount paid, there was a $28,707,079 reduction in pharmacy spending for both the PSE & ASE populations, from 2013-2014. This reduction in spending was due to the use of reference-based pricing strategies for several drug categories and several other clinical initiatives in addition to co-pay changes within the plan design. Analysis indicated there was not a reduction in drug compliance, nor was there any major cost shifting to plan participants related to the reference-based drugs. In fact, compliance to antihypertensive medications increased from 88% to 98% and compliance to statin drugs, increased from 87% to 98%. Human Factor collaborated with EBRx in order to define specific drug codes for this analysis.

3. Overall health care utilization (i.e., the number of people filing a health claim) increased from 2013-2014. Thus the reduction in spending was not due to fewer people going to their doctor.

4. In 2014, PSE & ASE members were incentivized to participate in preventive screenings. There were a total of 73,546 individuals from the ASE & PSE in 2013-2014 that had some type of preventive visit or screening. Based on our analysis, these preventive screenings have yielded a great deal of value. Examples of this value are:

Value yielded from preventive screenings

- Colonoscopies were one of the options that a plan member could choose as a preventive screening. Based 2013-2014 data, there were 2,119 individuals who had a tumor or polyp biopsied or removed. There were 73 individuals with a diagnosis of colon cancer combined for both the PSE & ASE populations. (A review of the scientific literature indicates that a routine colonoscopy will identify polyps in 20% of females and 30% of males. The "New England Journal of Medicine" stated that when an individual has a polyp removed during a routine colonoscopy, cancer death rates are reduced by 53%. By following the evidence-based guidelines related to colonoscopies, there is an opportunity for a huge cost avoidance ROI. Even though we discovered great success yielded from the colonoscopy outcomes, it is estimated that there are still more than 20,000 eligible lives on both the PSE & ASE that have not had a colonoscopy.

- Reductions in spending were identified for unique risk groups within both the PSE & ASE populations, chronic disease groups showing the greatest savings. It is plausible to potentially link this reduction in spending to the increased preventive screenings (i.e., chronic population had the second highest participation rates of preventive

3205 West Main Street • Russellville, AR 72801 • 479-968-3050
www.HumanFactorAnalytics.com • info@humanfactoranalytics.com

visits) and reductions in gaps in care. The availability of additional historical data would be needed to further test this hypothesis. However, a pre/post statistical analysis was performed on unique individuals in 2013 that received a preventive screening and matched the same individuals in 2014; the analysis revealed that this matched group had considerable reductions in spend as a unique group. It should also be realized that a portion of the reductions in expenditures was related to plan design changes that were put into place for 2014.

- Overall spending for the participants in preventive screenings was lower than non-participants, mean and overall. Equal levels of risk were present within each group (i.e., as measured by the distribution of ICD9 codes within each group). This risk equivalency testing indicated that both the healthy and "at-risk" population participated in the preventive screenings.

- Based on the success of the preventive screenings at reducing risk and potentially reducing spending, it is strongly suggested that this path be continued. In order to maximize the benefits of preventive screenings, it is suggested that age/gender and disease specific preventive screenings be tailored to the individual level. Systems are available to deliver such specific programs.

5. Chronic disease was found to be prevalent within the ASE population (i.e., >45%) and within the PSE population (i.e., >40%). Chronic disease is a long-lasting condition that can be controlled but not cured (e.g., hypertension, diabetes, heart disease, chronic obstructive pulmonary disease, asthma, etc.).

Research findings related to the Chronic Disease populations with the ASE & PSE

- Within the population that had a diagnosis of Diabetes (i.e., 16,406 individuals), only 13-20% of the population was compliant with evidence-based guidelines related to the treatment and management of Diabetes. An analysis was performed to demonstrate the cost associated with non-compliance and the increased risk associated with non-compliance. The analysis was able to demonstrate that the non-compliant group was more costly and had higher frequencies of complications associated with Diabetes (e.g., neuropathies, retinopathies, nephropathies, etc.).

- Overall medication compliance was approximately 83% for the PSE & ASE populations. Compliance to Hypertension medications was approximated 97%, as related to the individuals who were dispensed medication over the course of one year (i.e., 33,148). However, there were a total of 35,883 individuals within the PSE & ASE populations with a diagnosis of hypertension; thus, potentially 2735 individuals are non-compliant with their medication.

- The top three most expensive chronic diseases for both the ASE & PSE populations, were: (1) Cancer, (2) Heart Disease, and (3) Diabetes.

6. Expenditures for 19 major diagnostic categories were compiled for both the ASE & PSE populations. The top three most expensive diagnostic categories were: (1) Musculoskeletal, (2) Cancer, and (3) Diseases of the Circulatory system.

7. An analysis was performed to look at the prevalence of catastrophic expenditures for 2013 and 2014 for the both the PSE & ASE populations. Catastrophic spend was defined as individuals that have medical expenditures exceeding $100,000. The ASE had 52 claims in 2013 and 59 claims in 2014. The PSE population had 85 claims in 2013 and 98 claims in 2014. Thus, both groups had increase catastrophic claims in 2013-2014.

8. Avoidable Emergency Room visits for the ASE and PSE populations combined, amounted too greater than $1.5 million in expenditures. Avoidable ER visits are defined as those visits, which could have been appropriately treated; in another setting at the time the visit occurred. The State of Washington, through sampling of 53 hospitals and 2.2 million patients, established the definition of avoidable ER visits. Identifying frequent flyers and connecting them with a primary care physician and by limiting prescriptions at the ER related to opioid class medications, can reduce avoidable ER visits.

Solutions for Consideration

Managing and preventing chronic illness should be one of the main goals driving population health management strategies for the PSE & ASE populations. As identified within this baseline analysis, chronic disease was identified as the main precursor to increased spending and increased risk. In order to prevent or slow plan members from migrating to greater levels of risk, chronic disease should be addressed on two fronts. In order to prevent chronic disease, the population should be exposed to tools and resources that help each plan member engage in therapeutic lifestyle change (i.e., exercise, proper nutrition, weight management, etc.). For plan members that currently have some form of chronic condition, therapeutic lifestyle change in combination with evidence-based clinical guideline adherence should be the emphasis. Please consider the following strategy for program design inclusion:

- Implement a Cultural Audit to determine the population's receptivity to a population health management program. This type of analysis allows incumbent plan members to take ownership of a population health management strategy and helps plan organizers identify and work around potential cultural barriers to a programs success. (Culture has a strong determinant on any wellness programs success).

- Implement a Health Risk Appraisal in combination with the collection of biometrics (i.e., height/weight, blood pressure, blood chemistry, Hip to waist ratio or abdominal circumference, etc.) The inclusion of a Health Risk Appraisal in combination with

biometrics will increase the awareness of plan members regarding lifestyle habits and identify members that have hidden risk factors. The use of a Health Risk Appraisal that can equate risk scores with future spending should be considered.

- The population health management strategy should be governed by participation based wellness rules. Participation can reward for participation and thus enhance program participation and program outcomes. Purely voluntary programs have low participation rates and thus outcomes are negligible. Participatory wellness programs are programs that either: (i) do not provide a reward or (ii) do not include any conditions for obtaining a reward that are based on an individual satisfying a standard that is related to a health factor. In addition, participatory wellness programs must be made available to all similarly situated individuals, regardless of health status.

Examples of participatory wellness programs include:

- A program that reimburses all or part of the cost of membership in a fitness center
- A diagnostic testing program that provides a reward for participation in the program and does not base any part of the reward on outcomes, for example, a wellness program that provides a reward for merely taking a series of biometric tests (without regard to the results)
- A program that encourages preventive care through the waiver of the copayment or deductible requirement under a group health plan for the costs of, for example, prenatal care or well-baby visits (reminder: the PPACA's preventive services mandate requires non-grandfathered plans to provide certain preventive health services without participant cost sharing)
- A program that reimburses employees for the costs of participating, or that otherwise provides a reward for participating, in a smoking-cessation program without regard to whether the employee quits smoking
- A program that provides a reward to employees for attending a monthly, no-cost health education seminar
- A program that provides a reward to employees who complete a health risk assessment regarding current health status, without any further action (educational or otherwise) required by the employee with regard to the health issues identified as part of the assessment

Importantly, participatory wellness programs are not required to meet the five special requirements applicable to health-contingent wellness programs (see below). Therefore, any rewards provided in connection with a participatory wellness program do not count toward the permissible reward thresholds. Furthermore, reasonable alternative standards need not be made available under participatory wellness programs.

- As a component of the participation based wellness program, place incentive on member participation in age/gender specific preventive screenings.

- Perform data analytics on the outcomes yielded from 2015 wellness program participants and identify gaps in evidence-based care.

- Year two of the wellness program include member specific, evidence-based "to do list" related to chronic condition management.

- Year two engage a disease management vendor to help members reduce gaps in evidence-based medicine guidelines. Utilized baseline data generated from the analytics in 2015 to establish performance standards for the disease management vendor. Or as an option to engaging a disease management vendor, consider the engagement of a company out of Chicago called, "Evive". Evive does tailored messaging for chronic condition management and enhances participation in age/gender specific preventive screenings. Evive is currently being used by the State of Nebraska and has yielded a solid ROI to the State.

- Year three, consider the use of "Results Based Wellness Rules", results based wellness rules allows the plan sponsor to equate premium differentials when plan members do not achieve specific health criteria. These types of programs must offer reasonable alternatives and an appeal process must be put into place. Several self-insured employers throughout the United States are rapidly adopting results based wellness programs. The legality of the Affordable Care Act, as it related to results based wellness rules was recently challenged by EEOC. However, over the course of 2015, these issues should get solved. The thought behind results based wellness is that plan members must take some form of responsibility concerning their individual health management.