

Brief overview of :



3205 West Main Street, Russellville, AR

Presented to:

Legislative Council Executive Subcommittee

Past Research experience related to Kairos Research Partners

- ▶ Completed population health management analysis for the State of Arkansas (Bureau of Legislative Research), March 2015. Presented to Governors Health Task Force.
- ▶ Contracted with the State of Florida 2013-2016 to analyze health plan data, (i.e., 450,000 lives) to aid policy makers with future plan-design and risk mitigation strategies
- ▶ Contracted with large pharmaceutical company to analyze the economic differences related to biologic drugs administered in the physician's office verses through the pharmacy benefits manager
- ▶ Completed joint research with Boston based research organization to identify patients taking specific Metformin NDC codes and their prevalence of a cancer diagnosis
- ▶ Contracted with large trucking firm to investigate the relationship of truck driver health characteristics and job turnover rate

Kairos Research Partners- Team

- ▶ Richard Kersh, M.Ed.- 20+ years experience in population health management
- ▶ Town Travis, MS - 12+ years experience in health care analytics
- ▶ Rhonda Hill, 20+ years experience in Population Health Management analytics
- ▶ Dhruv Gupta, PhD - Past director of Health Care technology-IBM, research triangle
- ▶ John Karazim, MD - Medical director, 25+ years experience Occupational Medicine and Internal Medicine
- ▶ Sachin Mittal, 10+ years experience with “Big Data” analysis
- ▶ Harshada Patil, PhD. - inferential statistics and machine learning

Kairos Research Partners - Over 700 proprietary algorithms utilizing the following technologies



Cloud data warehouse



Artificial Intelligence and Machine Learning



Data load technology



Data Visualizations



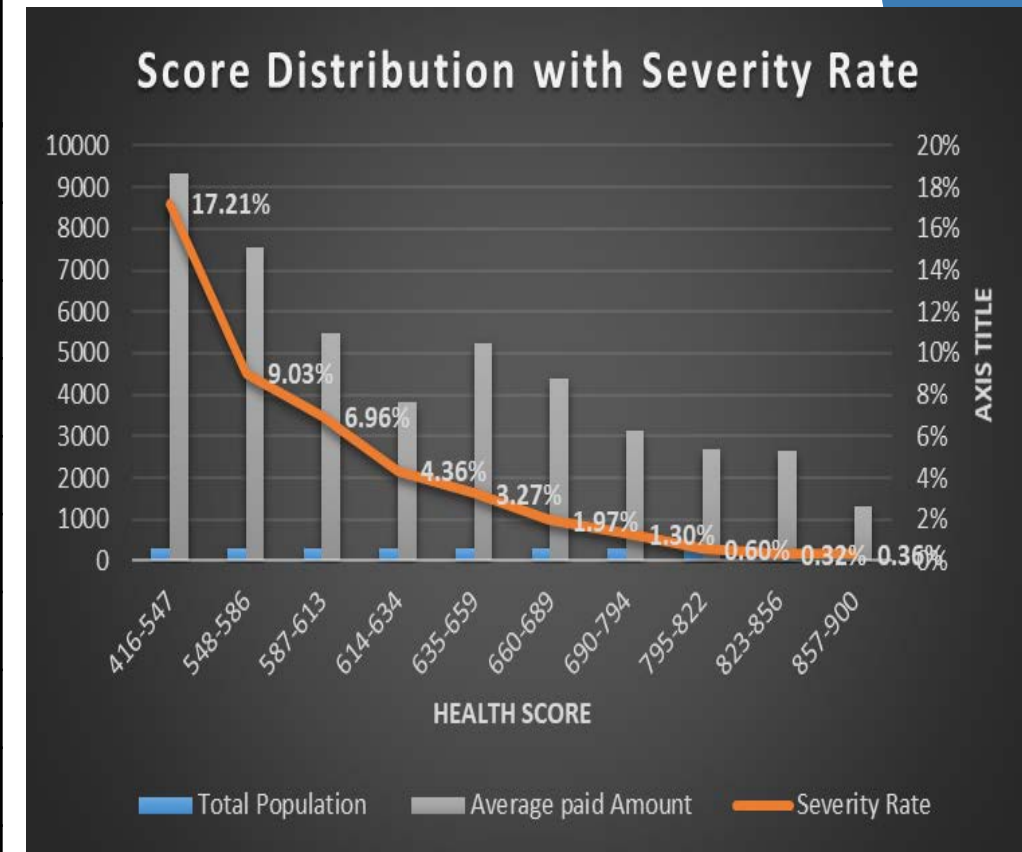
HIPAA-compliant data storage
and processing power

Kairos Research Partners-Example of predictive modeling case study

- ▶ Objective- Design a predictive model that can assign individuals a risk score that equates with musculoskeletal disease severity and predicts future spending
- ▶ Methodology- Begin with 3819 independent variables that potentially can predict future musculoskeletal spend and severity. Through supervised machine learning, discover 8 of the 3819 variables that account for greater than 70% of future spend variance for musculoskeletal diagnosis
- ▶ Results- Model currently has a 76% degree of accuracy and is increasing accuracy with additional data and gained insights

Health Score calculation in order to predict future musculoskeletal severity and expense

Decile Group	Score Value	Non-Severe Count	Severe Count	Severity Rate	Paid Amount (Performance Period)
1	416-547	255	53	17.21%	9325.24
2	548-586	282	28	9.03%	7534.01
3	587-613	294	22	6.96%	5469.50
4	614-634	285	13	4.36%	3822.62
5	635-659	296	10	3.27%	5241.36
6	660-689	298	6	1.97%	4372.83
7	690-794	303	4	1.30%	3117.09
8	795-822	330	2	0.60%	2700.74
9	823-856	309	1	0.32%	2647.55
10	857-900	277	1	0.36%	1328.99



Proposed budget for analytics project

<u>Personnel</u>	<u>Hourly Rate</u>	<u>Estimated Time</u>	<u>Total</u>
Richard Kersh, M.Ed. (Chief data and research design leader)	\$150	20 hours per week for 3 weeks	\$9000
Town Travis, MS (Data curation and project timeline management)	\$100	24 hours per week for 3 weeks	\$7200
Rhonda Hill (Programmer for data arrangement and data query)	\$100	30 hours per week for 3 weeks	\$9000
Dhruv Gupta, PhD (Senior Analyst and development lead)	\$125	20 hours per week for 3 weeks	\$7500
John Karizam, MD (Chief Medical Officer)	\$150	10 hours per week for 3 weeks	\$4500
Sachin Mittal, BS. Engineering, (Senior Analyst and lead developer)	\$125	30 hours per week for 3 weeks	\$11,250
Harshada Patil, PhD (Lead statistician and machine learning expert)	\$100	20 hours per week for 3 weeks	\$6000
<u>Travel Expense</u>			\$1000
<u>Project Total</u>			\$55,450