



2017 Performance Plan for Senthil Murugan

Employee Information

First Name	Senthil	Location	UPPER GWYNEDD PA USA-OFF
Last Name	Murugan	Country	USA
Job Title	Assoc. Dir, Quant. Sciences-(56153131)	Manager	Jane Cynthia Folske
Personnel Sub Area	GHH-Z005	Job Code	56153131

Year End Review

Overall Performance Category

Outperformed

Year-End Review Comments

Managers Comments

In 2017, Senthil informed rollout of RH for multiple brands with different program designs, including management of analytics for a comprehensive and complex pilot for BELSOMRA. Senthil discovered a difficult-to-discern implementation error (Walgreens), created multiple holistic financial scenario models, provided comprehensive weekly performance reports, monthly executive summaries and continuous consultation to multiple brand teams. Investment informed is expected to be upwards of \$50MM for analyzed brands (considering annual investment in 2017 or 2018; BELSOMRA, ERTU, JANUVIA, SIVEXTRO, DIFICID).

Senthil built collaborative relationships with his Finance counterparts who have owned coupon expense forecasting for a number of years. His keen eye and well-informed perspective were so well respected that it was mutually decided that Senthil would take point on coupon expense forecasting across brands going forward. This is a rational move as the results of analyses of program effectiveness that Senthil owns are a key input into these forecasting models. This move represents an elevation in the practice but also shows Senthil's ability to quietly demonstrate the value that he brings and have that effectively leveraged even when it means challenging and changing the long-standing status quo.

In the samples and vouchers space, Senthil consulted to resolve implementation issues with the JANUVIA sample levels pilot. An every-other-month shipping cadence leads to inventory peaks and troughs within each district; the character of these varies across districts. Defining tolerances and goals for the heavy-up and reduced sampling conditions required science and art beyond the typical, and Senthil was thorough, creative and collaborative in creating a process to keep the pilot implementation on track. Without this effort, it may have been necessary to pull the plug on this strategic pilot.

Senthil managed the IPF process for multiple brands. This is no small feat, especially given that the work was done by two individuals who were both completely new to the process. Senthil lead them expertly and this lead to seamless production of what was needed. This work will continue to be referenced throughout the year.

Stakeholder Feedback

Consistent with previous years, Senthil continues to garner high praise from his stakeholders. He is cited as having impressive attention to detail, noticing potential aberrancies in incoming data with a keen eye and following up by doggedly

pursuing an explanation. He has been identified as a key contributor on a number of project teams who was instrumental to the success of the project. He is encouraged to continue to proactively articulate sensitivities within his analyses and insure that management understands risks and opportunities. Senthil is known as a deep expert, and can continue to hone his analytical storytelling to find the right level as he acclimates to each new stakeholder.

Senthil garnered excellent feedback from people that he managed this year. He guided contributions by Sid and Igor on IPF, both of whom were new to this complex process. He supervised Ambika in her capacity as an intern over the summer; her agreement to join the team as an FTE in January of 2018 is a testament to his management style with her. He worked through challenges with his offshore support person to gain productivity and quality improvements in Ramana's work.

2018 Opportunities

In 2018, Senthil has the opportunity to continue to shape brand strategy related to samples, vouchers and co-pay programs. In the area of samples, Senthil owns mining the data enabled by the 2017 JANUVIA levels pilot, garnering any insights possible, and making a go/no-go recommendation as to whether to re-start the pilot. Senthil will also own production of updated sample response curves for integration into IPF and for informing in-year tradeoff decisions. Relay Health continues to be a focus for the company, and Senthil will have the opportunity to inform broad decisions in this space. He has the opportunity to build on the work already begun to process and analyze the extended FIA data to continue to evolve decision support of co-pay programs. IPF is likely to remain an important tool for informing Budget and in-year tradeoff decisions, and Senthil will continue to own and develop this important process.

Performance Objectives

Financial Performance

Inform Coupon Effectiveness and Strategy: Brand specific Analytics

Completed

Collaborate with Brand teams, Finance, Consumer COE and vendors to develop optimal coupon strategy for brands such as Januvia, Belsomra, Ertu etc.

- i. Study coupon effectiveness for patients.
- ii. Enhance financial models with the patient level effectiveness findings
- iii. Evaluate various coupon design strategies

Individual Objective

Category

Delivered Significantly Above
Objective

Additional Ratings and Comments

Individual Objective

Category

Delivered Significantly Above
Objective

Priority Details

Objective Name	Objective Description
Inform Coupon Effectiveness and Strategy: Brand specific Analytics	Collaborate with Brand teams, Finance, Consumer COE and vendors to develop optimal coupon strategy for brands such as Januvia, Belsomra, Ertu etc. i. Study coupon effectiveness for patients. ii. Enhance financial models with the patient level effectiveness findings

iii. Evaluate various coupon design strategies

Start Date 01/01/2017

Due Date 12/31/2017

Status Completed

Other Details

Accomplishments

Progress Notes	Much of the work done in this space for brand teams this year involves various Relay Health EVoucher evaluations. These analysis provide decision support worth about \$50MM to \$55MM in 2017/2018 EVoucher costs for Merck and about \$10MM to \$15MM for regular coupon programs.. Closely collaborated with Finance, COE and brand teams.	Completion Date	12/31/2017
----------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------	------------

Progress Notes	<p>A. Guided strategic analysis of Belsomra RH program.</p> <p>Cost of this program for Belsomra is \$4.2MM in 2017 and \$10MM in 2018.</p> <p>Program rolled out nationally with a single tier \$30 program.</p> <p>Identified implementation issues (ex: Walgreens)</p> <p>Analyzed multiple offer scenarios. Impact measurement guided the management to decide on national rollout.</p> <p>Initially developed and then Helped Ramana to deliver weekly performance reports and monthly executive summaries.</p> <p>Regarded as one of the main consultant to study such programs by the brand team.</p>	Completion Date	12/31/2017
----------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------	------------

Progress Notes	<p>B. Januvia EVoucher Program</p> <p>Cost of this program for Januvia in 2018 is about \$29MM.</p> <p>Program rolled out nationally in October 2017 for New Patients with \$30 to \$125 initial copays.</p> <p>Helped to evaluate and develop more holistic and several views of Financial Models to determine the rollout of Januvia EVoucher program.</p> <p>Several versions of</p>	Completion Date	12/31/2017
----------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------	------------

	abandonment and adherence curves were incorporated to understand the range of impact to business and patients.		
Progress Notes	<p>C. ERTU EVoucher analysis</p> <p>Estimated Cost of this program for ERTU in its first year of launch is about \$7MM to \$9MM.</p> <p>Rollout is likely after launch in 2018.</p> <p>Helped to evaluate and develop more holistic and several views of Financial Models to understand the potential impact of the program.</p>	Completion Date	12/31/2017
Progress Notes	<p>D. Sivextro and Difucid EVoucher analysis</p> <p>Estimated Cost of this program for Sivextro in 2018 is about \$700K.</p> <p>Sivextro rolled out this year.</p> <p>Difucid to rollout in December 2017.</p> <p>Consulted and evaluated various financial impact analysis developed by other teams.</p>	Completion Date	12/31/2017
Progress Notes	<p>E. Belsomra and ERTU regular Coupons (i.e, offered by McKesson)</p> <p>Estimated yearly cost of these two coupon programs is about \$10MM to \$15MM.</p> <p>Evaluated various financial scenarios to change the design of the current coupon program as well as the impact of various formulary wins this year for Belsomra.</p> <p>ERTU's offer of \$0 coupons was also evaluated similarly.</p> <p>Brand team rolled out \$30 single tier coupons for Belsomra and ERTU coupons with \$0 copay is planned to rollout after launch.</p>	Completion Date	12/31/2017

Financial Performance

Inform Sample and Voucher Effectiveness and Strategy

Completed

Study the impacts of Samples and Vouchers through data explorations and statistical modeling.
Evaluate various investment scenarios and provide optimal investment recommendations

Individual Objective

Category

Delivered Significantly Above Objective

Additional Ratings and Comments

Individual Objective
Category

Delivered Significantly Above
Objective

Priority Details

Objective Name	Inform Sample and Voucher Effectiveness and Strategy	Objective Description	Study the impacts of Samples and Vouchers through data explorations and statistical modeling. Evaluate various investment scenarios and provide optimal investment recommendations
Start Date	01/01/2017	Due Date	12/31/2017
Status	Completed		

Other Details

Accomplishments

Progress Notes	<ul style="list-style-type: none">Januvia Web Voucher Program cost that was impacted is about \$4MM per yearProvided in-depth analysis using LAAD and XPonent data based models to illustrate the financial impact of pulling web vouchers out for Januvia.This analysis highlighted the risk involved before Marketing pulled out the web vouchers.	Completion Date	12/31/2017
----------------	--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------	------------

Financial Performance

Pilot program analysis

Completed

Support brand and operations team towards design, execution and measurement of pilots and programs such as Relay Health, Januvia Sample pilot, Belsomra Digital heavyups, First Rx etc.

Individual Objective
Category

Delivered Significantly Above
Objective

Additional Ratings and Comments

Individual Objective
Category

Delivered Significantly Above
Objective

Priority Details

Objective Name	Pilot program analysis	Objective Description	Support brand and operations team towards design, execution and measurement of pilots and programs such as Relay Health, Januvia Sample pilot, Belsomra Digital heavyups, First Rx etc.
Start Date	01/01/2017	Due Date	12/31/2017
Status	Completed		

Other Details

Accomplishments

Progress Notes	<p>A. Belsomra Relay Health Pilot Impact Measurement</p> <p>Helped Ramana to statistically measure the impact of RH pilot for 9 states twice. First measurement was after 3 months of rollout and the second measurement was after 6 months of rollout.</p> <p>Consulted with brand team and COE, Guided the analysis process end to end including delivery of the appropriate results to brand team.</p> <p>Analysis showed that break-even is possible and helped to go with national roll out.</p>	Completion Date	12/31/2017
Progress Notes	<p>B. Januvia/Janumet Sampling Pilot</p> <p>Guided the implementation of sampling pilot for Januvia franchise. Tasks included district selections and adjustments, estimation of sampling increase and decrease for each sub-brand, sample inventory and ordering evaluations and continuous monitoring of the rollout.</p> <p>Worked closely with Januvia brand team, COE and Sampling Operations.</p> <p>Built a tracking dashboard using various data sources and gave it to Sampling Operations team so that they can monitor.</p>	Completion Date	12/31/2017
Progress Notes	<p>C. Belsomra Digital Heavy-up Pilot Impact Design and Measurement</p> <p>As part of RH Pilot analysis, helped to design and measure the impact of digital heavy-up program in NC</p>	Completion Date	12/31/2017

and VA. Return from the program was below break-even.

Financial Performance

Investment Prioritization Framework

Completed

Support the continued rollout of Investment Prioritization Framework projects for multiple brands.

Individual Objective

Category

Delivered Significantly Above Objective

Additional Ratings and Comments

Individual Objective

Category

Delivered Significantly Above Objective

Priority Details

Objective Name	Investment Prioritization Framework	Objective Description	Support the continued rollout of Investment Prioritization Framework projects for multiple brands.
Start Date	01/01/2017	Due Date	12/31/2017
Status	Completed		

Other Details

Accomplishments

Progress Notes	<ul style="list-style-type: none">Guided Igor and Siddharth in the execution of IPF work for Diabetes, Belsomra, Gardasil, Zostavax and P23. This involves multiple promotional channels and analysis of optimal budget allocations for 2018 profit plan. Total Budget considered in the analysis by Siddharth and Igor is about \$195MM.	Completion Date	12/31/2017
----------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------	------------

Innovation

Inform Coupon Effectiveness and Strategy: Coupon Engine Development

On Track

Setup an environment and develop an easily configurable coupon engine with following capabilities:

- Study relationships between copay, abandonment and adherence for various dynamically configured segments. This includes data visualization and modeling.
- Explore the possibility of using new technologies (AWS, R, Python etc.) that would add to savings in the future.

Individual Objective Category

Delivered On Objective

Additional Ratings and Comments

Individual Objective Category

Delivered On Objective

Priority Details

Objective Name	Inform Coupon Effectiveness and Strategy: Coupon Engine Development	Objective Description	Setup an environment and develop an easily configurable coupon engine with following capabilities: i. Study relationships between copay, abandonment and adherence for various dynamically configured segments. This includes data visualization and modeling. ii. Explore the possibility of using new technologies (AWS, R, Python etc.) that would add to savings in the future.
Start Date	01/01/2017	Due Date	12/31/2017
Status	On Track		

Other Details

Accomplishments

Progress Notes	<ul style="list-style-type: none">• Helped and guided team members (Ramana and Ambika) to design and develop flexible processes to get abandonment and adherence curves for dynamically configured segments using longitudinal patient level data for Diabetes and Belsomra. Overall objective is to channel these outputs for better coupon offer. Dynamically configured segments include Coupon users / No Buy Down users, Payment Type segments, Patient type segments (New vs Continuing) etc.• Designed the process with a view to accommodate the normal SAS processes with flexible XML based configurations and driver codes to	Completion Date	12/31/2017
----------------	-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------	------------

run appropriate codes based on the configuration. This design will help to add any future process optimizations like web based GUI and AI interfaces to SAS processes.

- Consulted with Ambika to resolve some of the adherence flatness seen in the KPIs. Development process will continue next year to include flexible visualizations and statistical modeling.

- Guided our intern Ambika Rana to implement coupon engine in AWS environment using Python to handle large patient level LAAD and FIA data located within AWS environment. The proof of concept prototype works and if we decide to move forward with this approach, SAS license cost of about \$150K first year and about \$50K each year could be saved.

Progress Notes

Completion
Date

12/31/2017

People

Coaching and Managing

Completed

Coach, Train and Manage consultant(s), intern(s) and direct reports to execute various promotional optimization projects.

Individual Objective

Category

Delivered On Objective

Additional Ratings and Comments

Individual Objective

Category

Delivered On Objective

Priority Details

Objective Name Coaching and Managing

Objective
Description

Coach, Train and Manage consultant(s), intern(s) and direct reports to execute various promotional optimization projects.

Start Date 01/01/2017

Due Date 12/31/2017

Status Completed

Other Details

Accomplishments

Progress Notes	a. Coached and Managed Ramana Reddy on various aspects of day to day work (methodologies, model evaluations, process setups etc.)	Completion Date	12/31/2017
Progress Notes	b. Coached and Managed Graduate Intern Ambika Rana in i. Analysis of field promotions through dynamic distributed lag models. This resulted in interesting and potentially valuable modeling related observations for the future. ii. Coupon Engine developments related to Abandonment and Adherence computations for various brands and segments. iii. Developing AWS / Python and R framework as an alternative cost saving model (instead of SAS servers) for handling large patient level transactional datasets.	Completion Date	12/31/2017
Progress Notes	c. Motivated Ambika Rana to consider and accept permanent position with Merck by carefully evaluating and providing what she needs in terms of analytical complexity and general guidance.	Completion Date	12/31/2017

People

Provide necessary resources

Completed

Establish and/or provide necessary resources (hardware / software / logistical / administrative) needed for effective and efficient execution of various projects by the group.

Individual Objective Category

Delivered On Objective

Additional Ratings and Comments

Individual Objective Category

Delivered On Objective

Priority Details

Objective Name	Provide necessary resources	Objective Description	Establish and/or provide necessary resources (hardware / software /
----------------	-----------------------------	-----------------------	---------------------------------------------------------------------

logistical / administrative) needed for effective and efficient execution of various projects by the group.

Start Date 01/01/2017

Due Date 12/31/2017

Status Completed

Other Details

Accomplishments

Progress Notes	• Helped to setup AWS environment for patient level data analysis. This was a time consuming task involving both learning on the fly and collaborating with IT.	Completion Date	12/31/2017
	• Saved \$20K in Anylogic licensing costs by exploring internal alternatives.		
	• Managed hiring and filling of a Specialist position for the group.		

People

Self Training and Development

Completed

Engage in conferences, relevant courses and meetings to understand the current industry and academic trends.

Individual Objective Category

Delivered On Objective

Additional Ratings and Comments

Individual Objective Category

Delivered On Objective

Priority Details

Objective Name	Self Training and Development	Objective Description	Engage in conferences, relevant courses and meetings to understand the current industry and academic trends.
Start Date	01/01/2017	Due Date	12/31/2017
Status	Completed		

Other Details

Accomplishments

Progress Notes	<ul style="list-style-type: none"> • Attended PMSA conference to learn about current industry trends in commercial analytics and presented the findings to IA&DS during the period when network and computer security were compromised. • Represented IA&DS for the ALC/IIA meetings at Dow Center in Chicago. Learned a lot about new analytics trends and the thought process of senior leaders from several large companies and academia. 	Completion Date	12/31/2017
----------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	-----------------	------------

Quality/Compliance

Awareness of/Conformity to Policies

Completed

- Complete all relevant compliance trainings.
- Review sensitive analysis with commercial legal.
- Encourage team members to raise any compliance issues or concerns.

Individual Objective Category

Delivered On Objective

Additional Ratings and Comments

Individual Objective Category

Delivered On Objective

Priority Details

Objective Name	Awareness of/Conformity to Policies	Objective Description	<ul style="list-style-type: none"> • Complete all relevant compliance trainings. • Review sensitive analysis with commercial legal. • Encourage team members to raise any compliance issues or concerns.
Start Date	01/01/2017	Due Date	12/31/2017
Status	Completed		

Other Details

Accomplishments

Progress Notes	• Required Compliance trainings were completed and reviewed	Completion Date	12/31/2017
----------------	-------------------------------------------------------------	-----------------	------------

various sensitive analyses with
legal.

Signature

Manager: Jane Cynthia Folske 03/14/2018

Employee: Senthil Murugan 03/19/2018