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Empowering the Next Generation of Professionals: Merck's Approach to Rising Talent Engagement and Leadership Development in Statistical Programming

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ABSTRACT

According to research from 2023, 40% of business leaders think recent graduates are not prepared to enter the workforce (Tenore, 2023). To create a workplace environment supportive of the growth of rising professionals, the pharmaceutical industry must proactively implement targeted talent development initiatives that equip these emerging professionals with the necessary skills, knowledge, and leadership capabilities to drive innovation and success in statistical programming. This paper aims to examine Merck's BARDS Statistical Programming Rising Professionals Club, an innovative talent development program designed to engage and nurture rising professionals within our statistical programming organization. In addressing these challenges, the Rising Professionals Club offers a multi-faceted approach, equipping our rising talent with the skills and knowledge essential for success in statistical programming and future leadership roles. Participants appreciated the program's comprehensive approach and highlighted the value of the skill development and knowledge-sharing components crucial to developing their statistical programming skills and leadership potential. The Rising Professionals Club at Merck represents a proactive approach to addressing the challenges of developing rising professionals in statistical programming and leadership roles within the pharmaceutical industry.

INTRODUCTION

CHALLENGES

The pharmaceutical industry drives innovation and advances in healthcare, playing a vital role in developing breakthrough therapies that enhance the quality of life for individuals globally. A skilled workforce is critical to ensure the continued evolution of these life-saving advancements. The lack of awareness about statistical programming as a career among current students and recent graduates poses a significant challenge: the widening talent gap in the field. While there is a highly skilled workforce already in place, the number of professionals who are new to the industry is significantly smaller. Therefore, it is essential for pharmaceutical companies to retain their top talent and develop effective succession plans. By implementing talent management strategies to attract, develop, and retain the best professionals, companies can build a robust talent pool that can be leveraged for succession planning (Jindal & Shaikh, 2020). Forty percent of business leaders think recent graduates are not prepared to enter the workforce (Tenore, 2023). To foster an environment supportive of the growth of emerging professionals, the pharmaceutical industry needs to implement targeted initiatives for talent development and retention. These initiatives should aim to provide individuals with the necessary skills, knowledge, and leadership capabilities required to sustain innovation. In Merck's Statistical Programming department, the Rising Professionals Club (RPC) has implemented a proactive approach to address the

challenges of developing emerging talent in statistical programming and leadership roles within the pharmaceutical industry.

OVERVIEW OF THE RISING PROFESSIONALS CLUB

Established in January 2024 to support the development and retention of talent and build a strong leadership pipeline, BARDS Statistical Programming's RPC is a comprehensive talent development initiative targeted at enhancing the development of early-career statistical programmers. The RPC provides a structured environment for passionate programmers to enhance their technical abilities while cultivating crucial personal, professional, and leadership skills. Membership in the RPC is open to any U.S.-based, entry-level Merck statistical programmer, creating a diverse pool ranging from interns to recent graduates to career changers new to statistical programming in the pharmaceutical industry. The club currently has over 20 members from varying educational and experience backgrounds. Moreover, members vary in functional areas, including but not limited to, statistical programmers supporting early and late development of clinical trials, project managers, and business system owners. The mission is to equip these rising professionals with the well-rounded skillset needed to excel in their current roles while positioning them for future growth opportunities and leadership responsibilities.

The RPC follows a structured program designed to facilitate technical skill development and professional growth. Regular programming challenges cutting across languages allow participants to apply learning in a practical setting. Additionally, the RPC hosts member-organized monthly club meetings, featuring three main components.

- Presentations by statistical programming leaders across different therapeutic areas and functions, providing insights into real-world applications.
- Technical training focused on building multilingual programming proficiency and other key tools.
- Open forum for members to share challenges, pose questions, and obtain feedback in a nurturing environment.

Beyond the monthly meetings and programming challenges, the RPC hosts informal social activities to foster relationship-building and networking among the members. Early impacts have included increased cross-functional knowledge sharing, mentorship opportunities from senior leaders, and exposure to diverse perspectives from members' varying backgrounds.

Plans are underway to develop a comprehensive core curriculum that captures key skills and can serve as an onboarding tool for new members. While currently relying on guest speakers, formalizing a structured curriculum will ensure consistent development opportunities as the program and membership expands.

KNOWLEDGE SHARING AND SKILL DEVELOPMENT

The RPC's mission is to equip members with the comprehensive skills and knowledge that are crucial for thriving as statistical programmers. The RPC nurtures technical programming proficiencies through meticulously structured learning activities while imparting insights into organizational processes, regulatory standards, and professional development strategies. This holistic approach is driven by two flagship components: monthly meetings and programming challenges.

MONTHLY MEETINGS

The monthly sessions hosted in 2024 adopted a dual approach. Firstly, the club was introduced to varying members of the statistical programming leadership team each month, providing personal experiences and elucidating the roles and responsibilities of their respective functional areas within the organization. Secondly, these sessions aimed to broaden members' exposure to various technical aspects of the business. Examples of topics included "Understanding SAP and Protocol", "Understanding the difference between eCRFs vs. aCRFs", and learning how study teams utilize tools such as Synchronizer and OneNote. These interactive sessions offered members insights into practical applications, career development guidance, and a deeper understanding of critical tools and processes.

The club plans to continue the monthly meeting rotation throughout 2025. Having engaged the senior leaders, the RPC plans to transition into more technical and professional discussions to improve these skills further. Additionally, there are opportunities for members to present on topics that will help broaden everyone's knowledge, while enhancing the presenter's soft skills.

Members gained invaluable insights by learning directly from subject matter experts in statistical programming and leadership roles. The topics covered a broad spectrum, encompassing key technical skills, tools, processes, and broader professional development guidance.

PROGRAMMING CHALLENGES

The RPC's second component is a series of programming challenges designed to hone members' technical skills. These challenges range from fundamental programming concepts to advanced data manipulations and problem-solving scenarios from real-world clinical trial examples.

So far, the RPC has hosted 10 programming challenges, and over 30 solutions have been submitted across all challenges. One early challenge, "Sort A String Inside A Variable" tested members' abilities to manipulate character data. This deceptively simple challenge reinforced skills in data step programming, character functions, and creative problem-solving.

One of the popular challenges in 2024 was "What to check in MedDRA coded Datasets?" This highlighted knowledge that statistical programmers need regarding the significance of MedDRA and the importance of consistent coding terminology. The programmers were asked to develop a program to detect the following situations:

1. Any terms not coded or fully coded (i.e., any missing values in coding variables)
2. Any terms with inconsistent coding (i.e., the same verbatim was coded differently)

Members devised solutions utilizing different approaches, such as designing an SAS script to detect inconsistencies in the MedDRA coded values.

A participant in a programming challenge related to MedDRA-coded datasets expressed the following feedback:

> "I really enjoy these coding challenges! I appreciate the background that they give and how it helps us think about problems we may run into in our role as programmers. For example, I previously had no idea of the in-depth details of what MedDRA is, even though I work with it frequently, and this challenge helped me get more meaning out of it whenever I see it in outputs and in ADaM."

This feedback is a testament to the importance of the scope of the challenges in providing opportunities to learn and grow beyond one's daily study work. Members strengthen their command of programming languages, tools, and clinical programming principles by tackling these analysis-based challenges. The challenges facilitate collaborative problem-solving, with members discussing approaches and learning from each other's code.

PERSONAL AND PROFESSIONAL GROWTH

In today's evolving workplace, personal and professional growth are crucial areas of development for emerging professionals. This growth enhances individual competence and adaptability in an office environment and contributes significantly to organizational success. As statistical programming within the pharmaceutical industry becomes more competitive and complex, there is a need for a workforce that is not only technically skilled but also innovative and capable of driving this change. Personal growth fosters self-awareness and emotional intelligence, while professional growth helps equip individuals with industry-specific leadership capabilities.

The RPC recognizes the importance of nurturing personal and professional growth among our statistical programming organization members. Utilizing informal lunches, social events, and collaborations with external organizations, the RPC has imposed these initiatives around creating a supportive environment that is conducive to individual growth, enhances talent retention, and collaboration amongst the members/peers.

INFORMAL LUNCHES AND SOCIAL EVENTS

A feature of the RPC is its commitment to promoting a supportive community through informal lunches and social gatherings. These events allow members to connect in a relaxed setting, encouraging the sharing of ideas, experiences, and best practices. During the summers, the RPC hosts informal lunches with senior leaders as well to increase the members' exposure to the statistical programming leadership team in a casual setting. In these gatherings, participants can discuss challenges they face in their roles, seek advice from peers and leadership, and celebrate achievements.

These interactions help build camaraderie and belonging among participants, which is essential for personal growth. By establishing friendships and professional relationships, club members can support one another, share resources, and collaborate on projects. This supportive network enhances personal development and cultivates a culture of teamwork and collaboration that is vital in a field that often relies on cross-functional cooperation.

COLLABORATIONS WITH EXTERNAL ORGANIZATIONS

The RPC encourages members to think outside the box and push their boundaries for continued growth. Through various courses offered by SAS, members have enhanced their skills and achieved both base and advanced SAS certifications. In 2024, the RPC made a notable impact at PharmaSUG. Five members attended the conference, one member helped organize and moderated a DE&I panel, three members wrote papers and presented at the conference, and three members were awarded the New Professionals Scholarship to facilitate their attendance. This year, the club is seeing even greater participation. Four members received the New Professional Scholarship, one club member

assisted in organizing the DE&I panel, and seven of the club contributed papers accepted for presentation at the conference.

MEASURING SUCCESS AND IMPACT

The RPC has made a profound impact on its members, as evidenced by the overwhelmingly positive feedback from a survey evaluating the club's efforts in 2024. A resounding theme emerged the programming challenges and interactive meetings are equipping members with enhanced technical skills and invaluable insights for career growth.

SUCCESS STORIES

Members repeatedly cited the programming challenges as pivotal for sharpening their coding abilities and problem-solving mindset. Members noted:

> "The challenges are good exercises, with background knowledge explained effectively for learning."
>
> "Some of the solutions are eye-opening, showcasing creative angles I hadn't considered."

Beyond technical mastery, the club cultivates leadership capabilities by exposing members to the organization's senior statistical programming leaders. As one member articulated:

> "Meeting with our leadership team provides incredible advice for career advancement."

This access offers a roadmap for potential trajectories while inspiring members to develop strengths aligned with future roles.

AREAS FOR IMPROVEMENT

Members also provided constructive feedback on areas for improvement. A common suggestion was expanding the range of topics and functional areas covered in meetings. Suggestions provided the need for specific topics breaking down coding concepts with dedicated workshops for in-depth learning.

The survey made clear that members immensely value the collaborative learning environment fostered by the RPC. As one member summarized:

> "The connections with members from other groups extend my knowledge across different areas."

Capitalizing on this collaboration, members proposed increasing their peers' involvement by encouraging them to take active leadership roles in hosting meetings and creating challenges.

Overall, the RPC is lauded for empowering the next generation of statistical programmers through an unparalleled combination of technical upskilling, leadership development, and community building. The feedback highlights the club's positive trajectory while providing a roadmap for continuously evolving to meet members' needs.

CONCLUSION

The RPC at Merck represents a promising and effective response to the challenges faced by the pharmaceutical industry in bridging the talent gap and preparing recent graduates for successful careers in statistical programming. The developmental and retention program's multifaceted approach effectively fosters technical proficiency, facilitates personal and professional growth, and cultivates leadership skills among its members. The structured monthly meetings and engaging programming challenges have enriched participants' knowledge and enhanced their problem-solving capabilities and creativity, which are essential traits in an industry characterized by rapid innovation and complexity.

Positive feedback from members highlights the program's significance as a vital development platform that meets the demands of today's pharmaceutical landscape. The RPC fosters a supportive environment that promotes shared learning and community building by integrating mentorship opportunities and encouraging collaboration amongst peers. As the club continues to promote growth and engagement, its members increasingly contribute significantly to the professional community, demonstrating their commitment to excellence and collaboration.

The ongoing evolution of the RPC and the establishment of a comprehensive curriculum reflect a commitment to nurturing future leaders and skilled professionals in statistical programming. This innovative talent development initiative addresses the immediate challenges of workforce readiness and positions the statistical programming department at Merck as a forward-thinking organization dedicated to investing in the potential of its rising talent.

REFERENCES

Jindal, P., & Shaikh, M. (2020). Talent management efficiency in succession planning: A proposed model for pharmaceutical companies. International Journal of Management (IJM), 11(12), 203-213.

Tenore, H. Some business leaders avoid hiring Gen Z grads: survey. Business Insider. (2023, August 7). https://www.businessinsider.com/managers-avoid-hiring-recent-gen-z-college-graduates-unprepared-survey-2023-8?r=US&IR=T

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