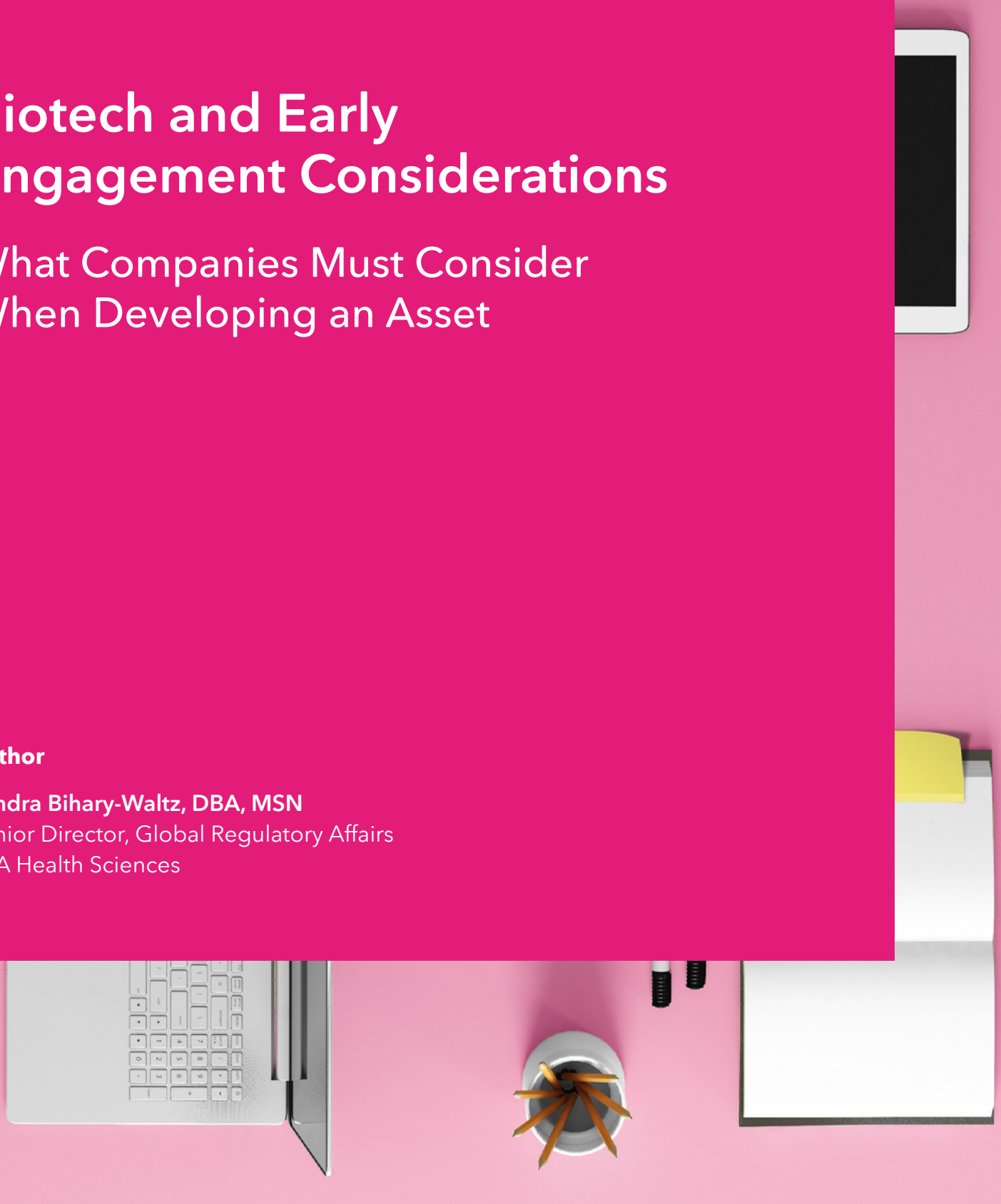
PRA Health Sciences

WHITE PAPER

Biotech and Early Engagement Considerations

What Companies Must Consider When Developing an Asset



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Executive Summary

Emerging biotech companies are a significant and burgeoning sector of the pharmaceutical development market. These companies often require unique and specialized expertise to guide them through asset development. There are a multitude of considerations when evaluating an asset for development, including the vision for the asset, development and continuum capabilities, and global versus local development.

This paper is the first in a series of installments on asset development. The goal of this paper is to navigate the complexities of developing an asset and considering a drug development partner. Additional installments will discuss regulatory considerations, early development considerations, drug development considerations, CMC, and global versus local considerations.

Early Engagement Considerations

The biotech pharmaceutical industry is comprised of companies ranging from large pharma to micro pharma. This includes emerging biopharmaceutical companies, which are smaller companies who seek human capital, validation via 'partnerships,' and additional funding or IPOs. Emerging biotech companies have an annual R&D spend generally of <$50 million.[1] They are a critical component of the industry, developing small molecules, large molecules, and biologics across the therapeutic range. Emerging biotech organizations can have a significant impact on healthcare and changes in treatment paradigms.

However, emerging biotech companies may not have the breadth of drug development and regulatory expertise and experience to develop these treatments on their own. They may need support and outside expertise to develop a 'molecule and an idea' and bring it forward for development, including non-clinical development considerations, clinical development, regulatory considerations, and global development considerations.

It is important that these companies partner with experts who can assist them in creating necessary development strategies, which help bring their asset or product to market.

Emerging companies must consider several factors when developing a product. This white paper will outline considerations that can help lead a company forward, as well as the optimal partner for success.

[1] Robert W. Baird & Co. survey data, Healthcare Supply Chain & Pharma Services, October 1, 2019.

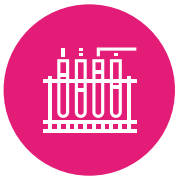
Engagement

When an emerging biotech company begins engagement with a partner, many questions need to be asked. It is critical to pose and answer these questions to determine the optimal development path and development partner. Areas for consideration include:

Vision

How does the company envision developing their asset?

What is the long-term plan for the development of this molecule?



Development Continuum and Capabilities

Where is the company on the development continuum?

What capabilities do they have and what do they need to augment/support?

Do they have the CMC capabilities for clinical trials and post-approval?

Global Versus Local Development

Does the company envision/anticipate developing for worldwide use or local?

Vision

The first step to consider when developing an asset or product is the vision. Smaller, emerging companies will most likely not have the internal support, capabilities, or expertise to develop a product from a molecule to a marketed product. They will also not be able to develop it with internal resources beyond concept.

It is imperative that the company and stakeholders or investors identify what they want to do when developing a proposed molecule. A development partner can help guide them through the thought and development process.

The next question to ask is, "How far along the development continuum will we develop this product?"

- Does the company envision developing the product to the point of completion of nonclinical studies, Phase I or II, or even through marketing application and authorization?
- Does the company intend to only follow the continuum to a certain point, planning to sell the asset?
  - If so, the right development partner can guide them through the plan to get the product poised for sale.
  - This would also include preparation of a "pitch deck" for potential investors and buyers. The development partner can assist the company in creating a differentiated value story to potential investors or partners.

A critical component of the vision is financing. The commercial potential for the asset or product needs to be identified early in development. In the early development stages, working capital is critical and there is a reliance on investment of others. Companies rely heavily on investors and Series A, B, etc funding to continue the development of their product. A development partner who has a deep understanding of developing a product within financial parameters can ensure the development strategy maximizes financial obligations while also creating an assertive development strategy.

Early in the development program, a Target Product Profile (TPP) should be developed to ensure the eventual commercial goals (eg, indications and target populations) are identified and the development is designed to support these goals.

The TPP will be discussed in the **Development Continuum and Capabilities** section.

Lastly, part of the vision should involve considering global versus local development. This will be discussed more in-depth in the **Global Versus Local Development** section.

Development Continuum and Capabilities

As discussed in the last section, one of the first points for consideration is the biotech company's product development capabilities. As we know from data, emerging companies anticipate an annual spend of <$50 million[1], which does not provide sufficient financial resource to have in-house capabilities. Therefore, it is paramount to seek a development partner who has expertise in developing programs in a 'step-wise' approach and is cognizant of financial constraints.

Companies will often utilize individual consultants to augment their staff and provide the expertise and counsel needed to develop the product. While this initially can provide a path forward, the company can oftentimes be left with a 'patchwork quilt' of advice from consultants. Every one of these consultants has their own opinion and experience, which may not align with other consultants on the program. Engaging early with a development partner who provides end-to-end services will ensure a seamless, cohesive, and comprehensive development program. The company can use that program to maximize the data available and the knowledge and expertise of the development partner.

Engaging with a development partner sooner ensures critical questions are asked early. Acknowledging these questions helps guide the company and partner in creating a development plan that meets the needs of the company and utilizes all regulatory capabilities, precedent, and guidances to ensure maximal use of the data to date.

The creation of a TPP can be a critical step in developing the asset or product. For example, the TPP can help identify upfront what characteristics and milestones should be used for go or no-go decisions. The TPP will also guide the development of the labeling, as it can identify early on if there are trade-offs that

need to be considered. For example, one trade-off could be considerations for different indications that may have differing class labeling requirements. If there is a labeling difficulty identified during the development of the TPP, that is the time to plan a strategy that allows for development activities that lead to modified or deleted class labeling requirements. A strong development partner can guide the company through the process. That way, issues are identified as early as possible and mitigation strategies can be put into place.

A nonclinical and clinical development program (CDP) also needs to be developed as early as possible, with the nonclinical taking the lead. The results from the nonclinical studies will drive the CDP and lead to the identification of the doses, duration, route of administration, and safety and potential efficacy issues.

Additional questions to be asked include:

- Have nonclinical studies commenced?
- What do the data show thus far?
- Have any safety issues been identified which can impact the Phase I/First-in-Human studies?

Early development and drug development considerations will be topics of upcoming installments in this series.

Lastly, and importantly, **Chemistry, Manufacturing, and Control (CMC)** must be considered as early as possible. Some questions surrounding this topic include:

- Is the asset a large or small molecule?
- Is it a biologic which will require specialized manufacturing capabilities?
- Are there supply chain issues?

Identifying how the investigational product (IP) needs to be manufactured and released drives all development, so it will need to be evaluated as soon as possible. The selection of a Contract Manufacturing Organization (CMO) is also a critical decision point. One must evaluate capabilities and consider the necessity for a current good manufacturing practice (cGMP) facility.

CMC considerations will be the topic of an upcoming installment in this series.

Global Versus Local Development

Global clinical development maximizes the ability to increase the slope of the recruitment curve, potentially shortening clinical development time. However, global development comes at a significant cost to the company. Therefore, determination of whether to develop the asset locally or country-specific can provide emerging companies with a focused development program. This can lead to marketing authorization and the ability to maximize marketing authorization applications (MAAs) elsewhere.

Most countries now require MAAs to be submitted in electronic common technical document (eCTD) format, utilizing International Council for Harmonisation (ICH) guidelines. This means that maximizing data worldwide is easier. A strong development partner is an expert in eCTD and electronic submissions, along with all regulatory requirements worldwide.

Regulatory considerations, along with the company vision, will help drive the decision toward global versus local development. A strong development partner possesses an experienced and expert Global Regulatory Affairs (GRA) team, which is a partner in the development program. The GRA team will guide the company in assessing appropriateness and requirements for global and local development.

Questions to consider include:

- What are the minimal studies needed to file an Investigational New Drug (IND)?
- What additional studies will be needed for the IND?
- How can we maximize the preclinical data to health authorities?
- Are there any special regulatory designations (Orphan Drug, PRIME, Breakthrough, Fast Track, Priority Review) for which the asset might be eligible?
- How do we determine the country where the First-in-Human study will be conducted?

It is imperative to access global and local experts who can guide the company through the intricacies of global and local development.

Regulatory considerations will be the subject of an upcoming installment in this series.

There are numerous additional considerations which were not addressed in this section. Your development partner is the expert of regulatory considerations worldwide, and is an integral part of the drug development team that ensures all considerations are vetted.

Conclusion

A variety of factors and issues must be considered when developing an asset. Early development companies face a particular challenge and opportunity to create a development plan that maximizes their asset and financial considerations.

An ideal development partner is one who understands the complexity of issues, utilizing their expertise and experience to guide the company toward success.

PRA understands better than most the essential role of all experts at all steps along the development process. Our experts can help simplify the complex drug development journey. PRA has the expertise, experience, and knowledge to help determine the optimal path forward for each client. We also have several options available for meeting clients' needs. Start a discussion with our development experts to determine the best approach for your company and asset.

Contact Information

For further information, or to discuss any aspect of PRA's services offered in this field, please contact the email inbox or our corporate office below:

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