

Strategic Considerations for Clinical Development Programs in Emerging Biopharma Companies

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Congratulations!



Your scientific hypothesis has been validated in animal studies



You've identified a lead compound or biologic (and back-ups)



You've understood some preliminary animal pharmacology and have negative preliminary toxicology findings



You've decided to start (or have begun) human clinical testing!



... and your Investors are thrilled, but daunted (because now the "fun" starts)



Why are you here today?

What we will discuss:

- The importance of designing your clinical program with the end in mind, from First-in-Man through approval and commercialization
- Perspectives: Investors vs. stakeholders vs. market
- Balancing risk with investment opportunity
- Understanding the specific landscape and market for your product
- Thinking ahead without investing major resources

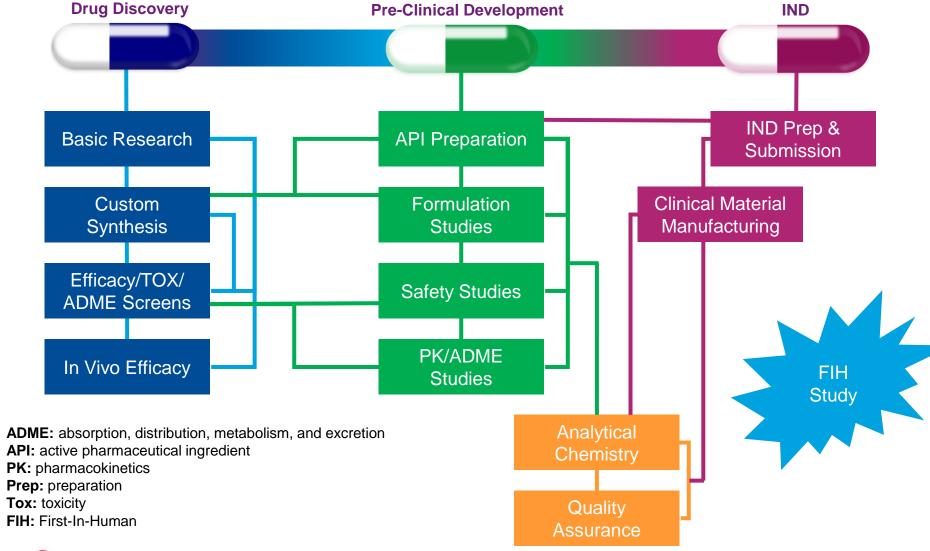
Key takeaways:

- Recognize the opportunity: Align clinical & commercial intentions
- Design to build evidence: Integrate key program elements to inform stakeholder requirements
- Optimize execution & operations: Balance current spend against future return by leveraging capabilities of a partner
- Deliver value: Planning for the future now helps optimize ROI



Activities of "Today": Pre-clinical development

The next investment (\$7-10M) frontier...





Early clinical development realities

An investor's (and potential partner's) perspective

Stakeholders want to understand the value (opportunity, ROI) of a compound. They also want to understand the risk. Better, faster decision-making about whether a (or which) compound should progress has become even more critical

Optimal investment return requires early-phase studies that deliver quality data & insights to make the correct decisions



New approaches needed to:

- Rapidly assess the clinical & market viability of the NME
- Identify risks

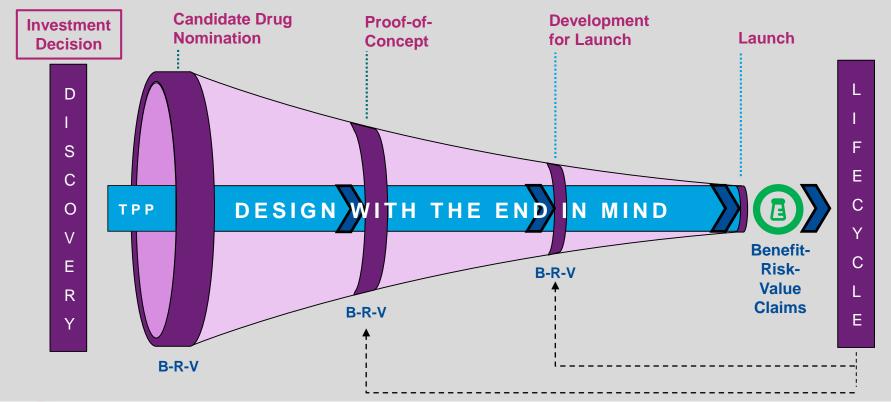
 Decrease time to "killprogress" decisions



An investor's/partner's "long-haul" perspective

Capitalized costs per new drug approval: \$1460M

	Mean 80.8 mo.			16 mo.	
Phase	1	II	III	Submission- Launch	\$965
Mean Out-of-Pocket Cost (\$M)	\$25.3	\$58.6	\$255.4	\$44M	
Phase Transition Probability	59.5%	35.5%	61.9%	90.4%	11.8%





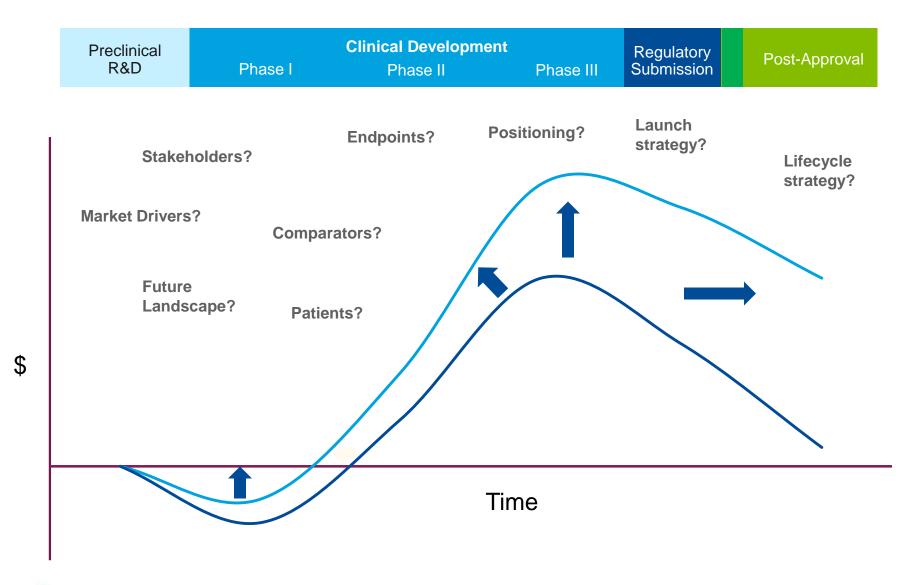
Polling question #1

Which statement below best fits your team's understanding of "long haul" point of view on your product and the incorporation a "design with the end in mind" principle in planning activities?

- We have a strong understanding of the long haul view and actively incorporate it into our design principles and planning activities.
- We have a strong understanding of the long haul view, but struggle to bring it into design principles and planning activities.
- > We are working towards better understanding of this view, and expect to incorporate it into our design principles and planning activities this year.
- Our view of the long haul is limited and therefore not a part of our design principles and planning activities.



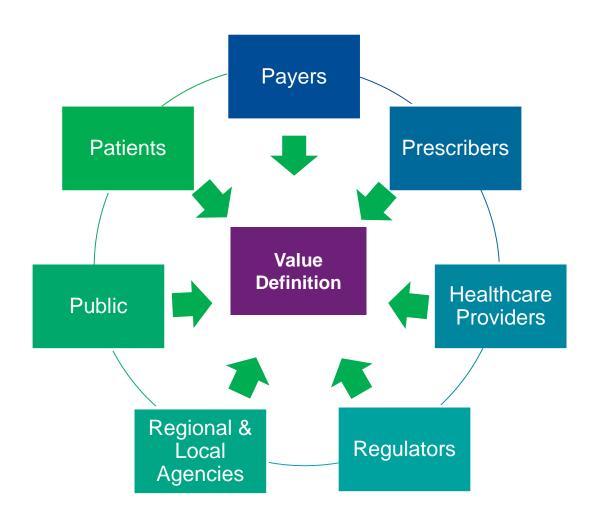
Value creation in biopharma





The Market Perspective: What shapes return?

Value is in the eye of the stakeholder / decision-makers





The challenge of meeting multiple stakeholder needs

Patient

Need to maintain health

Benefit/risk tradeoffs

Affordability of care

Policymaker

- Balance of quality and cost
- Societal considerations
- Health system statutes and guidelines

Manufacturer

- Incentives to develop evidence
- Reimbursement commensurate with value
- Return on investment
- · Reward for innovation

Value

Payer & HTA

- Balance of quality and cost
- Evidence-based care
- Provision of appropriate care to appropriate populations
- Balancing care across the population

Laboratory

- Better, faster, cheaper
- Staff resource requirements and turn around
- Managing with a budget

Provider & Hospital

- Provision of appropriate care
- Provision of reimbursed services
- Financial efficiency & viability
- Managing with a budget



Investment view: Can the molecule deliver value?

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Value is built from the documented and expected performance of the molecule

Payers Patients Prescribers Evidence Package Healthcare **Public Providers** Regional & Regulators Local Agencies

PARTNER

Therefore, the "strategy" for development must focus on demonstrating the asset's unique capabilities in the language of decision-makers

Polling question #2

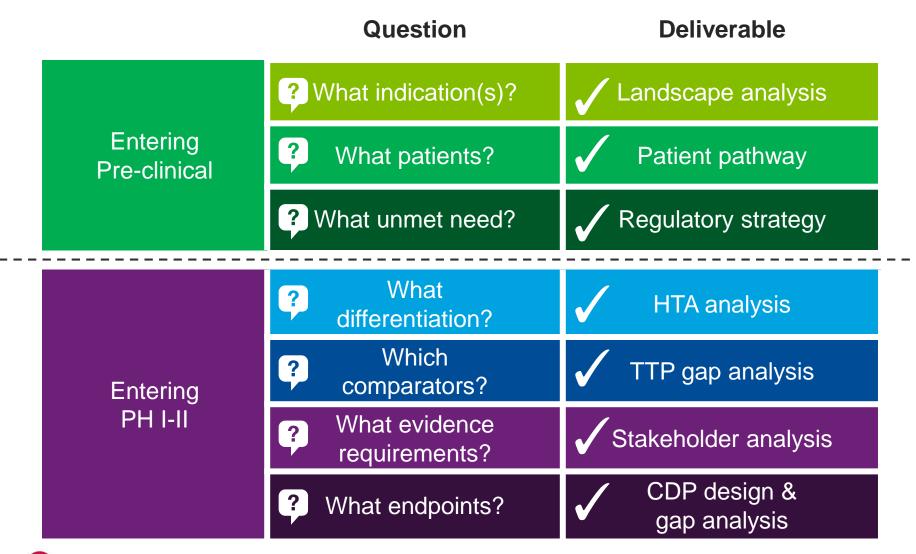
Which statement below best aligns with your organization's abilities to address, understand, and incorporate the full range of stakeholder requirements into your product and program plans?

- We're fully staffed and structured to address this today.
- > We have limited abilities to do this today, but are confident in the different options to get there.
- > We have limited abilities to do this today, and are uncertain how to approach it.
- > We haven't really considered this at all.



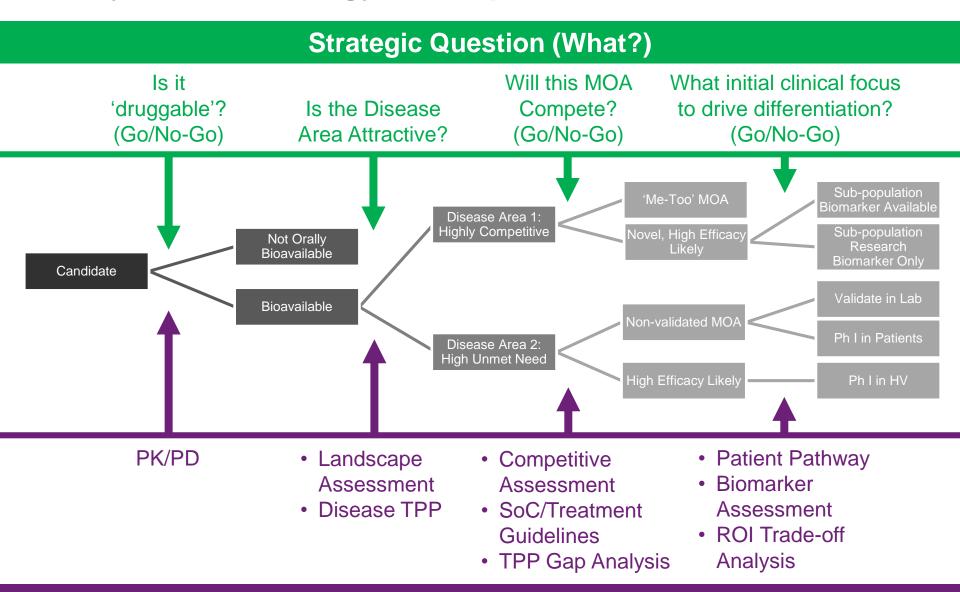
Defining the opportunity: Key early development questions

Deliverables and the tools used to answer them





Early clinical strategy development



Driving Execution Decisions (How?)

Building evidence: Optimizing evidence-generation

Building evidence requires addressing strategic questions using a stepwise approach to ensure next steps drive the highest program value

Develop Landscape Insight Capture Stakeholder Perspective

Identify Gaps and Scenarios

Evaluate Scenario
Trade-offs

Progress Optimal Approach

Landscape Assessment

Evaluate market

dynamics, patient

pathways, medical

competitive data

practice, and objective

· Evaluate HTAs & proxies

Develop perspective on

evolving market 'White

Space' / unmet need

Use market research to

Stakeholder Value

- characterize stakeholder unmet needs at launch
- Identify anticipated value/differentiation drivers and acceptance thresholds
- Focus on specific evidence requirements for optimized approval/ utilization

Gap Analysis & TPP/CDP Scenario Surfacing

- Surface gaps in program objectives in context of evolving launch environment, stakeholder needs and desired value drivers to frame TPP scenarios
- Align TPP to stakeholder evidence needs to surface evidence strategy gaps and frame CDP scenarios

Trade-off Analysis

- Conduct crossfunctional evaluation of ROI considerations & key cost, risk and value tradeoffs associated with pursuit of select TPP and CDP scenarios
- Gain agreement around recommendations for strategic product profile focus and value demonstration plan to optimize medicine value

Optimized Evidence Plan(s)

- Translate recommended trade-off outputs into integrated evidence plan including regulatory and additional value evidence development
- Articulate risk plan to monitor for need to change strategic or operational plan
- Use ROI assessment to drive plan endorsement and execution

Integrated and Iterative Steps

Improving your probability of success

- Systematically gathering and analyzing the information you need
- Supporting you in analyzing options to seamlessly integrate clinical strategy and execution



Building evidence: Integrated Asset Development

Demonstrating and delivering the full value of your therapy to the marketplace

Integrated Asset Development Plan delivers complete set of crossfunctional strategic and operational outputs across the development of a pharmaceutical therapy

Integrated and iterative process drives optimized information and risk fidelity across the life cycle

Process clarity provides efficiencies around cross-functional interfaces, dependencies and overlap

Cross-functional focus ensures that process drives optimized value to all critical stakeholders





Building the early evidence-generation plan

Key deliverables and activities



Pre-Clinical

Phase I

Phase II

Disease Area Strategy

Value Proposition

- Indication Prioritization
- Financial Trade-off Decision Analytics
- Pricing Analysis

Target Product Profile

- Competitive Landscape Analysis
- Patient Pathway Analysis
- Stakeholder Analysis
- Policy Landscape
- Payer / Provider / Patient Research
- HTA Analysis
- KOL Analysis / Interviews
- Draft Launch Label

Regulatory Plan

NDA Submission Plan

Clinical Development Plan

- Translational Science plan
- Clinical Pharmacology
- Clinical Trial Landscape
- Regulatory Pathway Assessment
- Benefit-Risk Value Proposition
- · Endpoint Analysis

Clinical Development Plan

- · Generate CDP Scenarios
- Timelines and Key Milestones
- Endpoint Strategy
- Regulatory Strategy
- Statistical Modeling
- Study Design Concept Scenario Development
- · Interim Decision Points
- Risks/Contingencies
- TPP/CDP Alignment
- Protocol Development & Optimization

Value Proposition

NPV/ROI Evaluation

Market Access Plan

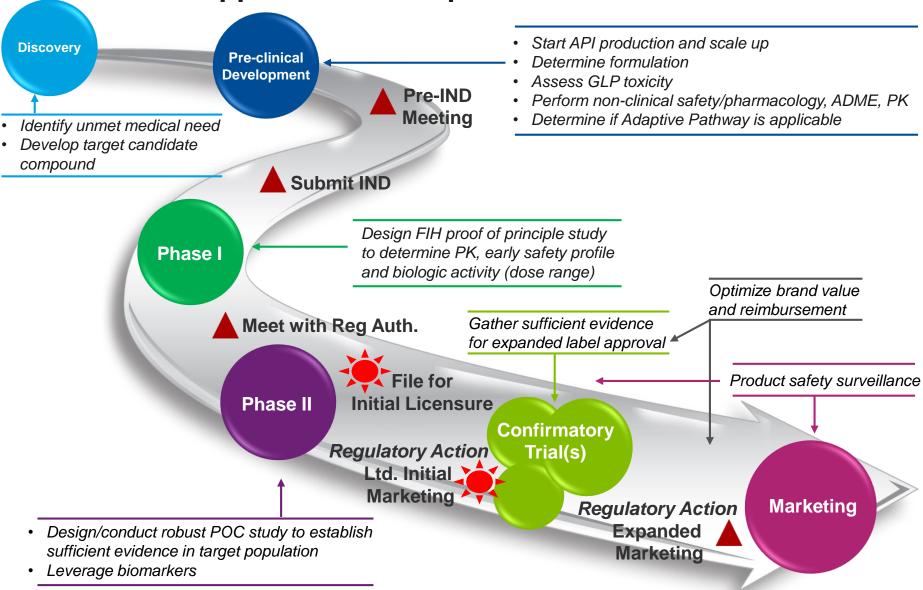
- Stakeholder Needs Assessment
- Patient Access Considerations

Regulatory Plan

End-of-Phase II Planning



Accelerated approval: Development considerations





Now what? Doing the work...

Optimizing execution & operations requires balancing internal cost with delivery

Keeping the "Foot in the Future" mindset while executing missioncritical activities is a challenging balancing act for a small, emerging enterprise

- Requires multi-disciplinary expertise (Large Pharma has New Products Planning)
- Requires senior-level, forward-thinking, strategic drug development expertise
- Requires good data to support cost, time, risk and return trade-offs
- Requires integration of multiple stakeholder-related planning efforts

This approach can be costly, especially if built through internal staffing

- Headcount would be added at a time of most significant product attrition risk
- Requisite expertise is expensive

Alternate approach: Consider a "virtual pharma model"

- Keep in-house decision-making expertise lean and focused on strategic intent
- Leverage capabilities of an integrated, end-to-end, full-service provider
- This requires a much more strategic, end-to-end approach to sourcing



Polling question #3

What is your organizations' primary approach to building infrastructure and operationalizing your key programs?

- > We'll build out internal teams slowly overtime at a time of most significant product attrition risk.
- > We're partnering with other pharma organizations on this.
- > We're approaching a virtual model to keep a lean in-house model paired with expertise and services from an external service provider/partner (s)
- Something in between



Leveraging your service provider

Comprehensive integrated clinical and regulatory sourcing support

Disease Area Strategy

Clinical Support for Lead Identification/Optimization or Due Diligence

Translation Science Strategy & Implementation (Lab)

Candidate Drug Nomination Package (Clinical/Reg/Commercial)

Animal-to-Human Dose Selection & Formulation (Clin Pharm/MBDD)

Preparation & Submission of IND Package/Agency meetings

Preparation of Phase I/PoC Protocols

Tech transfer & execution of GLP clinical assays (PK, PD, ADME, Genomic, etc.)

Early Patient & Endpoint Strategies

Ongoing evolution of Integrated Asset Development Plan

Operational Start-Up and Execution of ECD Program (Data Flow)

Preparation and transition to Phase II/III Clinical Program

Seamless
Integration with
Early Development
Team

Integration with Non-Clinical Outsourced Activities

Rigorous Project
Management
Across ECD
Portfolio

Integrated IT infrastructure



In Conclusion... Focus on Driving Value Key Takeaways

The role of the Emerging Pharma leader is to balance the needs of "Today" with the requirements of "Tomorrow":

- Recognize the opportunity:
 - Align clinical & commercial intentions
- Design to build evidence:
 - > Integrate key program elements to inform stakeholder requirements
- Optimize execution & operations:
 - Balance current spend against future return by leveraging capabilities of a partner/service provider
- Deliver value:
 - > Planning for the future <u>now</u> helps optimize the value of your asset



Thank you!



Q&A

For more information:



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