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Future supply chains enabled by continuous processing

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Problem: Currently, It's a long way to the Patient

Supply Chain 1-2 Years Start to Finish



⇒ Slow

⇒ High Inventories between steps

⇒ Long lags for changes to be seen in Formulated Product

⇒ Risks mitigated by dual supplies, stocks and over capacity

⇒ Product quality variability introduces cost and risk

⇒ New technologies require patient-demand centric supply

⇒ Higher cost/dose

⇒ Formulation can be specific to source of active

⇒ Limits access to medicines

⇒ Little chance for process improvement

Discussion

- The significant opportunities to moving to a supply chain flow-through operating model, with substantial opportunities.
- Scenarios for decentralised production models producing a greater variety of products with enhanced volume flexibility
- Production, supply and value chain footprints that are radically different from today's
- Clinical trial and drug product development cost savings that support more rapid scale-up and market entry models
- The major supply chain and industrial transformational challenges that need to be addressed

End-to-End Supply Chain

End-to-End Supply Chain Opportunity

Reducing Inventory within primes from >200 days to < 70 days

Manufacturing – cost of quality, Achieve >5 σ , Right-First-Time

1-2 yrs Inventory days of supply – opportunity to reduce 50%

Reduce Cycle Time by half (starting materials to packed product)

Reduce Drug Development cost, currently at \$1.15bn/drug[ABPI], by 10% (cost to market)

Enhance Flexibility and Service to patients, improving both patient service and compliance through more demand driven responsive supply chains

Reduction in Management overheads, reducing the manual interactions in the oversight of batch-campaign operating models, through enhanced by flow-through supply concepts

Future Vision & Opportunity

- Opportunity
- Future vision
- Capturing value
- Designing the End-to-End supply chain
- Resolution and challenges
- Transformation

Conclusions

- Significant opportunities in inventory reduction, lead time to patient and quality.
- Decentralised production and supply models with differentiated products
- Rapid scale-up
- New manufacturing architecture/footprint
- Development savings
- Transformational challenges