Patrick Vallance
SVP - Medicines Discovery and Development

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R&D Strategy is Focused on Continuously Improving Quality, Novelty & Cost Efficiency

**Discovery**
- Focus on the best science
- Re-personalise R&D
- Diversify through externalisation

**Development**
- Simplify development
- Invest in the pipeline
- Eliminate predictable attrition

Focus on Return on Investment
Committed to Improving Returns in R&D

R&D returns over the last decade have been disappointing¹

Our estimates for GSK’s late-stage portfolio²

Our goal is to improve this return by 25% via our R&D strategy

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2. We have estimated the projected rate of return based on the investment made to create our late stage pipeline and our expectations on future long term sales performance. Our current late-stage portfolio includes pharma assets (eg small molecules and biopharms) and vaccines launched from 2007 onwards plus current phase IIb & III pipeline.
Five Levers to Improve Returns in Pharma R&D

1. Shift R&D spend from early to late
   - 2002: 40%
   - 2010: 60%

2. Increase Discovery externalisation
   - 2007: 10
   - 2010: 50

3. Grow biopharm pipeline
   - 2002: 5
   - 2010: 25

More rigorous focus on potential differentiation prior to commit to full development

Drive efficiencies throughout R&D

Do more with the same or less cost

1. Early = pre-Commit to Medicines Development (C2MD); Late = post-C2MD
2. Discovery = Start of Chemistry to C2MD
Driving Efficiencies – Do More With Less

- Significant decrease in workforce
- Major reduction in infrastructure
- Reduction in number of sites recruiting zero patients
- Increase in number of patients per site
- Streamlining of CRO strategy
- Reduction in clinical study country footprint
- Reduction in clinical trial supply overages

- ~28% decrease since 2006
- ~29% decrease in m² since 2006
- 29% to 16% (2006-2010)
- Doubled from 5-10 (2006-2010)
- 100+ CROs to 2 (2006-2010)
- From 78 to 48 countries (2006-2009)
- Resulting in ~$120m cumulative savings (2006-2009)
Rigorous Capital Allocation Process Within R&D

Discovery Investment Board (Pharma R&D)
- Allocates DPU funding on a 3 year business cycle
- Commits Discovery Performance Units to deliverables and costs
- Earmarks 3 year funding but can revoke if DPU underperforms
- Clear financial incentives for successful DPUs

Portfolio Investment Board*
- Asset Investment Decisions at Phase IIB, Phase III, File and Launch
- Annual Funding re-distribution across all R&D Units (incl. Rx and Vx)

*PIB governs Pharma R&D. An independent parallel body with equivalent inputs governs Vaccines (Vaccines Investment Board operates from Phase I)
R&D Pipeline Promise: Will it Deliver?

Late Stage Visibility
- ~30 PIII assets; 15 with PIII data by end 2012
- Willing to make big bets:
  - Albiglutide (type 2 diabetes)
  - Benlysta (lupus)
  - Darapladib (atherosclerosis)
  - MAGE-A3 (melanoma, NSCLC)
  - Relovair (asthma, COPD)

Mid Stage Flow & Decision Gate
- Rigorous decision making to reduce attrition
- Focus on medicines that will make a difference

Early Stage Sustainability
- >20 publications in Nature and NJEM
- 38 DPUs & 54 external discovery engines
Why Big Pharma?