DEVELOPMENT AND APPLICATION OF A UNIVERSAL BENEFIT-RISK ASSESSMENT FRAMEWORK FOR MEDICINES

James Leong [1], Neil McAuslane [2], Stuart Walker [2], Sam Salek [1]

[1] Welsh School of Pharmacy, Cardiff University, Cardiff, UK [2] Centre for Innovation in Regulatory Science, London, UK

INTRODUCTION

- Benefit-risk assessment is a critical process in regulatory decisions for development and registration of medicines
- The environment for the assessment of medicines tends more towards profiling safety and efficacy
- Therefore, there is an increasing need to articulate and account for these benefit-risk decisions
- Little information is currently available of the benefit-risk assessment approaches used by regulatory agencies and pharmaceutical companies, and hence the reason for this study

AIMS AND OBJECTIVES

- A study was constructed to investigate the current approaches and future directions for benefit-risk assessment
- The objectives of the study were to:
  - Identify agencies' and companies' current approaches to benefit-risk assessment
  - Establish the criteria for including a framework/model for benefit-risk assessment, and their advantages, disadvantages, barriers and possible solutions as perceived by agencies and companies

METHODOLOGY

- The study included the following areas:
  - The current systems employed by organisations for the benefit-risk assessment of medicines during development and review
  - The perception of the need for an appropriate benefit-risk framework
  - Factors for reviewing benefit-risk frameworks
  - The perceived advantages and barriers to implementing benefit-risk frameworks
  - Development of visualisation tools for communicating benefit-risk decisions

RESULTS

Profile of Responders

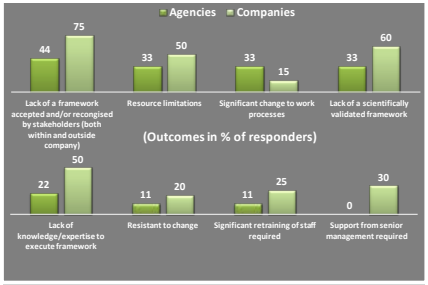
- Eleven out of 14 agencies (79%) responded, which included:

• US Food and Drug Administration (US FDA)	• Therapeutic Goods Administration, Australia (TGA)
• European Medicines Agency (EMA)	• Health Canada
• Other European National agencies	• SwissMedic
• Medicines and Healthcare products Regulatory Agency, UK (MHRA)	• Health Sciences Authority, Singapore (HSA)

- Twenty out of 24 companies (83%) responded, comprising of both large and small organizations
- None of the organizations used a fully quantitative system
- 6 out of 11 agencies and 9 out of 20 companies used a semi-quantitative systems

Study Outcomes

Figure 1. Barriers to implementing semi-quantitative or quantitative frameworks



Major barriers were the lack of an accepted and scientifically validated framework

- 10 out of 15 responders using semi-quantitative systems were not satisfied
- Methodologies deemed useful and relevant by responders were not used by their organizations currently

Figure 2. Plans to change to semi-quantitative or quantitative systems

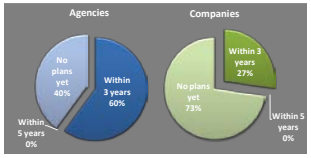


Figure 3. Major perceived advantages of a benefit-risk framework

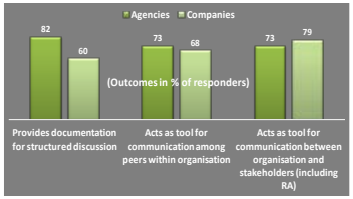


Figure 4. Perceived directions in developing the benefit-risk framework

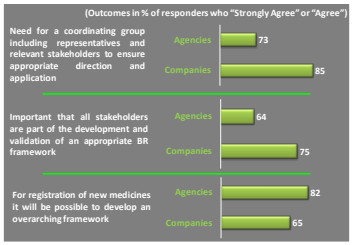


Figure 5. Purposes of a benefit-risk framework

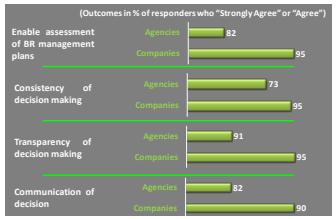
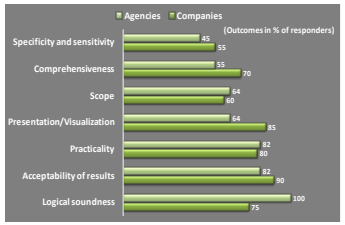
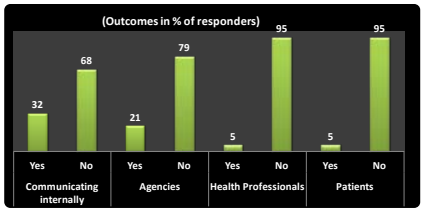


Figure 6. Factors considered relevant to review benefit-risk frameworks



- The framework should be used by both agencies and companies, internally across the agency, and for the entire product life cycle

Figure 7. Companies who had developed visualization tools to communicate benefit-risk decisions



None of agencies who responded had developed visualization tools to communicate benefit risk balance

Of the companies who did, it was mainly for internal communications

DISCLOSURE

- Author(s) of this presentation have the following to disclose concerning possible financial or personal relationships with commercial entities that may have a direct or indirect interest in the subject matter of this presentation:
  - James Leong: Nothing to disclose
  - Dr Neil McAuslane: Nothing to disclose
  - Prof Stuart Walker: Nothing to disclose
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DISCUSSION

- The stakeholders considered that any proposed framework:
  - Is likely of a semi-quantitative nature
  - Would have the flexibility to incorporate existing assessment methodologies
  - Is capable of enhancing communication
  - Should cover both agencies and companies, and be applied across the entire life cycle of a product
  - Should be guided by a coordinating committee in the development and implementation of the framework

CONCLUSION

- Agencies and companies are looking for a change in their current way of assessing the benefits and risks of medicines
- The study highlighted the agreement between agencies and companies in the following areas:
  - Advantages and purposes of a benefit-risk framework
  - Characteristics of an ideal framework
  - Directions for developing the framework
  - Factors for reviewing framework
  - Barriers to implementing a framework

RECOMMENDATIONS

- Form a coordinating committee to steer the development and implementation of a universal framework
- Identify relevant methodologies to be used within an overarching framework
- Use visualization tools for communicating benefit-risk decisions

FUTURE CHALLENGES

- Future challenges are to:
  - Develop an internationally acceptable and standardized framework for benefit-risk assessment
  - Identify when and how patients should be included in benefit-risk decisions, both in drug development and regulatory review
  - Build a tool box of methodologies adaptable to different situations