EUROPEAN MEDICINES AGENCY
SCIENCE MEDICINES HEALTH

Impact assessment of regulatory sciences – application to PROTECT outputs

ENCePP Plenary meeting

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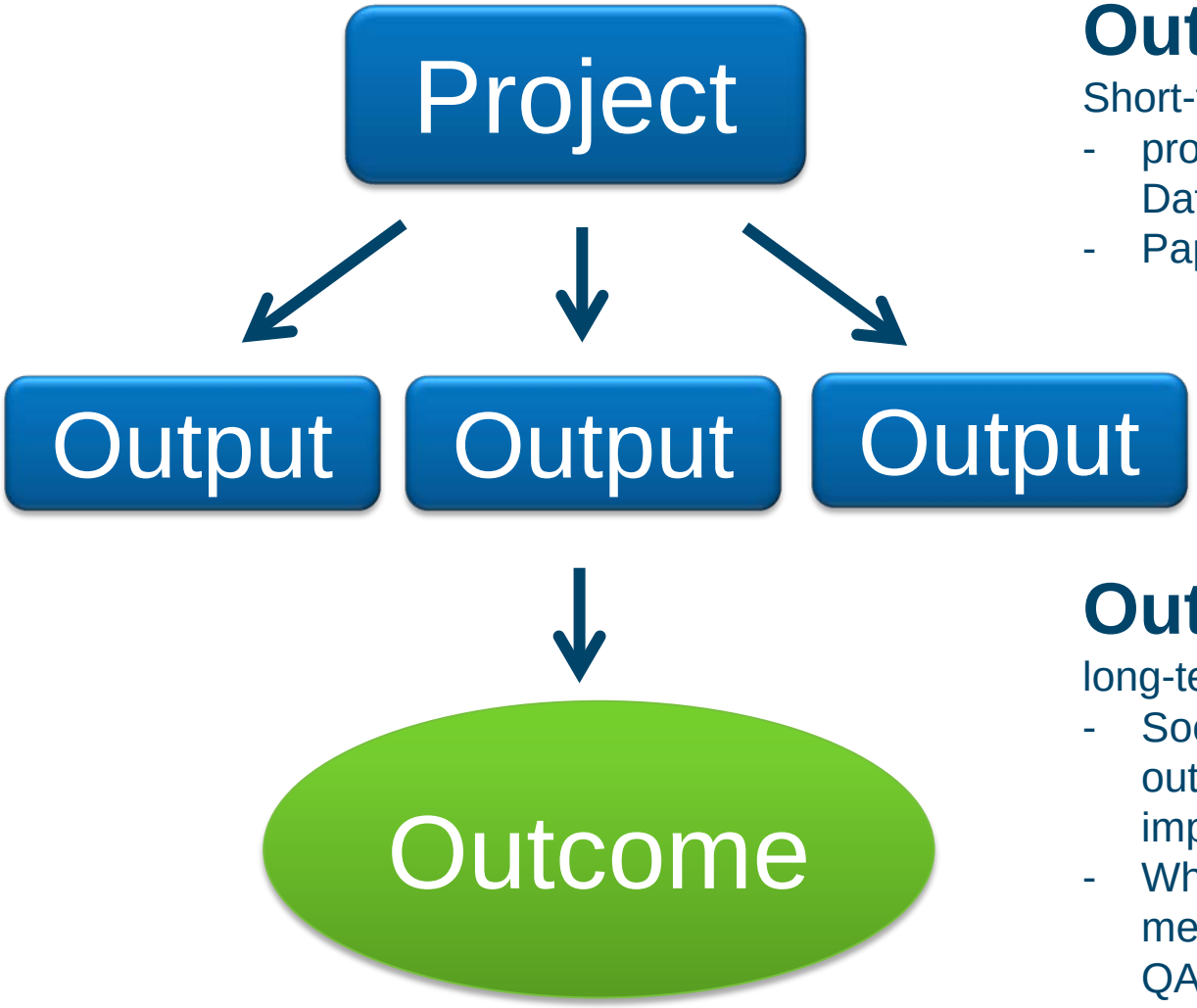
Background

- Regulatory agencies have primary responsibility to promote and protect public health though the evaluation and supervision of medicines
- To this end, many are engaged in research activities, notably regulatory sciences aiming to improve the evaluation of quality, efficacy and safety of medicinal products by:
  - Supporting research in areas of emerging and innovative sciences
  - Improving and evaluating the regulatory framework (methods and processes)
  - Developing and testing an infrastructure to build capacity for studies on drug safety and benefit-risk.

Translation of outputs into outcome



Output =

Short-term result

- product, service, knowledge, e.g. Database, software, biomarker...)
- Paper, patent, ...

Outcome =

long-term result/impact

- Social and economical impact of an output after (successful) implementation
- Where possible quantitative measurement (e.g. costs saved, QALYs gained, times shortened,...)

Questions

- When are outputs matured enough to form a basis to implement changes in regulatory practice (OUTPUT → OUTCOME)?
- To what extent should outputs from regulatory science projects be validated, scrutinised and peer reviewed in the scientific community before their implementation?
- Should there be a trade-off between timing of implementation and scientific replication/validation?
- Which outputs should be prioritised for active implementation?
- What is the impact on resources?

Can we define simple and standard criteria that would help prioritisation?

Proposed criteria (under discussion at EMA)

1. Domains

Intended target of research activity

Process: changes in process reflected in changes in guidelines, procedures, work instructions, training courses

Behaviour: behaviour of individuals or targeted entities affected by the deliverable

Outcome: actions implemented and final results

Adapted from Coglianese C. Measuring Regulatory Performance-Evaluating the impact of regulation and regulatory policy, OECD, August 2012.

Proposed criteria (2)

2. Indicators

Impact of change: level of benefits brought by the change in case of implementation, considering affected stakeholders and estimate of public health impact

Maturity*:* stage of development in relation to intended application; eg.

- **inadequate**: output has not reached such a stage of development that it can be communicated to scientific community;
- **incomplete**: significant further development is still needed (e.g. independent confirmation, re-testing in another setting)
- **nearly complete**: need for peer review process or minor adjustments
- **complete**: no further development is needed

Proposed criteria (3)

2. Indicators (2)

Feasibility:

- impact of implementing the outcome in terms of resources (human, financial, infrastructure, IT or other resource needed)
- acceptability by concerned stakeholders
- alignment with applicable legislation.

Timing of implementation

Delay within which the deliverable can be implemented, eg. <1 year, 1-2 years, >2 years.

Proposed criteria (4)

3. Scoring

- Semi-qualitative, eg. +, ++, +++
- Weighting possible

- **Perspective may differ according to: academia, industry, regulators, patient, health care professionals,…**

Example PROTECT Adverse Drug Reaction Database

- **Structured downloadable Excel database of all ADRs listed in section 4.8 of the SPC of Centrally-authorised products authorised in the EU, based exclusively on MedDRA**. Also includes information on gender, causality, frequency, class warning and source of information for ADRs for which additional information is provided in the SPC. (see http://www.imi-protect.eu/adverseDrugReactions.shtml)

- Created through a stepwise approach using automated mapping of ADR terms listed in section 4.8 of SPCs to MedDRA terminology, fuzzy text matching and expert review. Updated periodically.

- Intended result:
  - Improvement of the efficiency of signal detection by filtering or flagging electronic reaction monitoring reports (eRMRs) for signals related to unlisted reactions only (= OUTCOME)
  - Research purpose: evaluation of adjustment of statistical signals for known ADRs, and of the effect of background restriction on the performance of statistical signal detection (=PROCESS)

Example

PROTECT ADR database: Impact assessment

Indicators	
Intended target - Process - Behaviour - Outcome	 + + - + + +
Impact of change	+ + +
Maturity	+ +
Feasibility - impact on resources - acceptability - alignment with legislation	 + + + + + + +
Timing	+ +

Summary

- Attempt to define criteria for prioritisation of regulatory science activities:
  - Identification of activities with highest impact
  - Efficient use of resources
- Work in progress
- Systematic analysis of PROTECT outputs is planned
  - Protocol being developed
- Application to other projects