

Session 5: Dealing with Unmet Medical Needs and Support to Innovation



Structure: 4 presentations followed by 20 minutes for exchange and discussion



Guidance to R&D programmes: Scientific Advice and the PRIME network

The EU medicines regulatory system and the European Medicines Agency: an introduction for international regulators and non-governmental organisations

18 September 2017

Presented by Stiina Aarum
Product Development Scientific Support Department



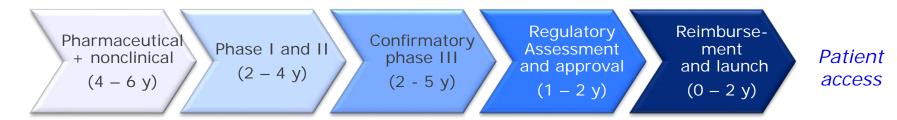
This session:

Scientific advice and protocol assistance – Scope, value and current developments

- Parallel EMA/HTA scientific consultation
- Qualification of novel methodologies and biomarkers
- Modelling and simulation
- PRIME-Legal basis, value and experience so far



The typical long road of bringing medicines to patients



Regulatory provisions targeting the risk of development failure and the time to access:

- Scientific advice
- Support to small/medium-sized enterprises
 - PRIority MEdicines scheme (PRIME)
 - Conditional marketing authorisation
 - Accelerated Assessment
 - Compassionate Use

Scientific Advice

- Legal basis: According to Article 57-1 (n) of Regulation (EC) No 726/2004 of the European Parliament and of the Council of 31 March 2004
- One of the tasks of the Agency is "advising undertakings on the conduct of the various tests and trials necessary to demonstrate the quality, safety and efficacy of medicinal products".
- Advising Applicants on the scientific requirements for marketing authorisation (MA):
 - Before the first MA: companies ask questions on manufacturing, non-clinical and clinical trials, risk-management plans, ways to develop generics, hybrids and biosimilars; significant benefit for orphan medicines; development in children etc.
 - Post-MA: extension of indication to different age groups and stages of the disease; different conditions; & safety aspects. Line extensions etc.



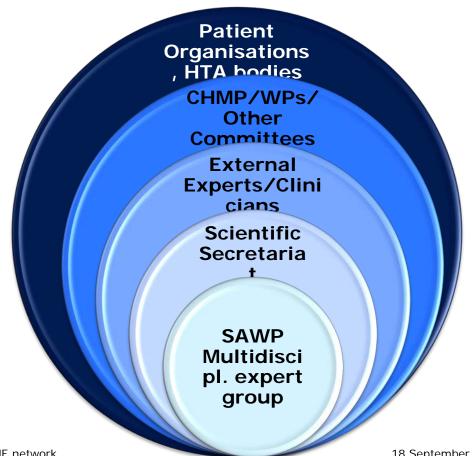
Scientific Advice

For human medicines, SA and protocol assistance are given by the Committee for Medicinal Products for Human Use (CHMP) on the recommendation of the Scientific Advice Working Party (SAWP).

Prospective in nature- focusing on development strategies rather than preevaluation of data to support a MAA.



Scientific Advice Network



Guidance to R&D programmes: Scientific Advice and the PRIME network

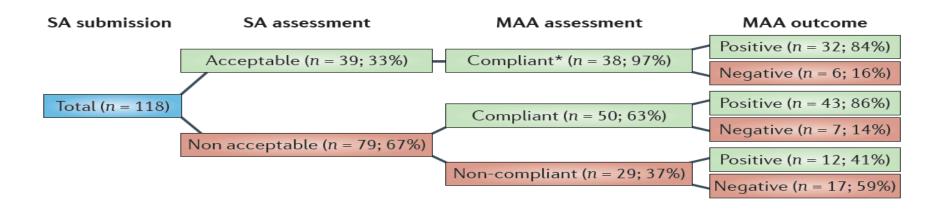
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Scientific Advice Working Party (SAWP)

- Experts from national authorities, universities and hospitals selected for expertise: e.g. oncology, cardiology, psychiatry, neurology, immunotherapy, gene and cell therapy, advanced therapies, pediatrics, geriatrics; quality, non—clinical and statistical methodologies.
- Joint members across Committees not only CHMP, but also Paediatrics, Orphan, Advanced Medicinal Products, PRAC
- Scientific and logistic support from EMA secretariat: medical doctors /pharmacists and assistants



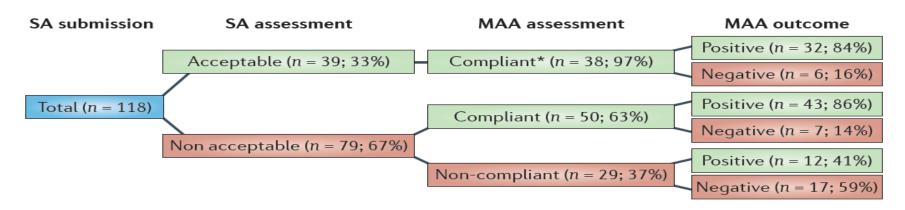
SA can help to guide changes in the pivotal clinical development...



SA/PA submitted in 2008–2012, Hofer et al. Nat Rev Drug Discov. 2015



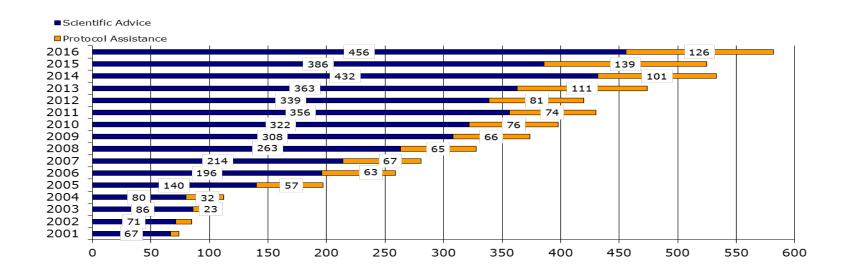
SA can help to guide changes in the pivotal clinical development towards improved regulatory acceptability



 Obtaining and complying SA is strongly associated with a positive outcome of a MAA: almost 90% of those who obtain and follow SA receive a positive opinion compared to 40% for those who do not follow SA; Hofer et al. 2015



Scientific Advice main activity so far: scientific advice and protocol assistance



Parallel EMA/HTA scientific consultation



Starting point: Newly licensed medicines do not reach all patients in need Regulators and HTAs

- answer different questions
- have different requirements in terms of evidence

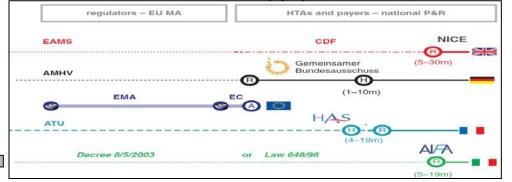
Aim: decision makers come together early to discuss

- the planned development including populations / comparators / design of trial /endpoints
- the requirements for post-licensing evidence generation

Expectation: Optimised development plan → Improve access for patients



Reality check: from EU regulatory approval to national HTA/P&R decisions for oncology products



	Drug	Indication	EU MA Approval	Time for HTA/P&R after MA (month)			
	bosutinib (Bosulif)	chronic myeloid leukaemia	03/2013	7	7	11	18
	vismodegib (Erivedge)*	basal cell carcinoma	07/2013	n/a	7	5	20
Guidance to R&D progra	cabozantinib (Cometrig)* ammes: Scientific Advic	medullary thyroid ce:a nc ethe PRIM	03/2014 //E network	n/a	10	8	n/a

Martinalbo et al., Early access to cancer drugs in the EU. Ann Oncol 27: 96–105pt2016017



Align regulatory and HTA thinking; what constitutes success?

Tripartite understanding of roles, remits and standards

Common language

Common understanding of methodology

Common understanding of science and methodology; different application?

Evidence generation without undue delay: avoid sequential thinking

Alignment of the perspectives of EU regulators and HTA bodies published: Tafuri et al, Br J Clin Pharmacol (2016):

Studied population, comparator, endpoints, overall package for E and S, other study design characteristics

Qualification of novel methodologies and biomarkers

Vision: Speed up/optimise drug development and utilisation, improve public health

Procedure to guide the development of new more efficient ways to develop drugs, e.g. development of new endpoints for clinical trials

Examples:

- Methods to predict toxicity; IC to enrich a patient population for a clinical trial:
 Volume of certain brain structures and level of certain biochemicals in the cerebrospinal fluid for trials in Alzheimer's disease
- Surrogate clinical endpoints: new sensitive scales to measure efficacy of a new drug instead of hard clinical endpoints
- Patient and caregiver reported outcomes
 Guidance to R&D programmes: Scientific Advice and the PRIME network



Qualification of Novel Methodologies for drug development

CHMP Qualification Advice on future protocols and methods for further method development towards qualification.

CHMP Qualification Opinion on the acceptability of a specific use of the proposed method (e.g. use of a biomarker) in a research and development (R&D) context (non-clinical or clinical studies), based on the assessment of submitted data.

Who can apply? Consortia, Networks, Public / Private partnerships, Learned societies, Pharmaceutical industry.

117 procedures since start in 2008



Modelling and simulation- regulatory value

Early: Enable early informed discussion with sponsors regarding study designs, endpoints, dose regimens, paediatric questions, data needed to support benefit risk decisions

At MAA: Support benefit risk decisions by investigating uncertainties & untested scenarios, and their clinical consequences

Translate benefit risk from the population to individual

Inform SmPC especially for special populations

Support Subgroup analysis

Post Marketing: Inform the contents of the RMP

Lifecycle transpagement and Aproducts IME network



Eligibility to PRIority Medicines (PRIME) scheme

Legal base-accelerated assessment

(Recital 33 and Article 14(9) of Regulation (EC) No 726/2004)



Medicinal products of major public health interest and in particular from the viewpoint of therapeutic innovation.

- Potential to address to a significant extent an unmet medical need
- Scientific justification, based on data and evidence available from nonclinical and clinical devialogments. Scientifications and the scientification of the scientification of the scientification.

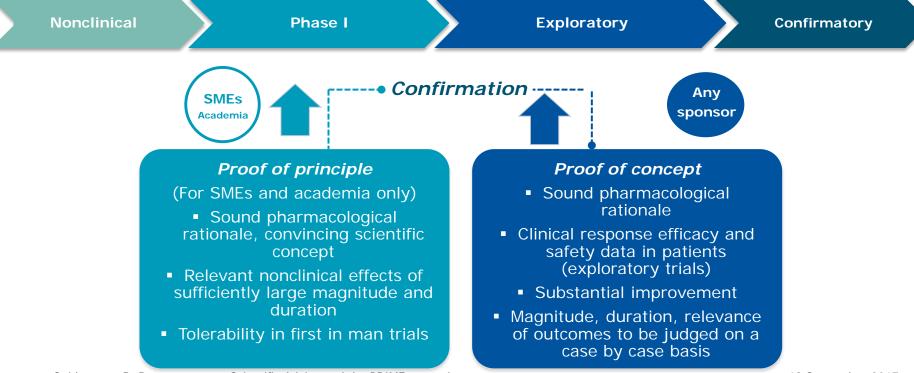
No satisfactory method or if method exists, bring a major therapeutic advantage

Introducing new methods or improving existing ones

Meaningful improvement of efficacy (impact on onset, duration, improving morbidity, mortality)



Entry points PRIME eligibility and required evidence



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Features of the PRIME scheme

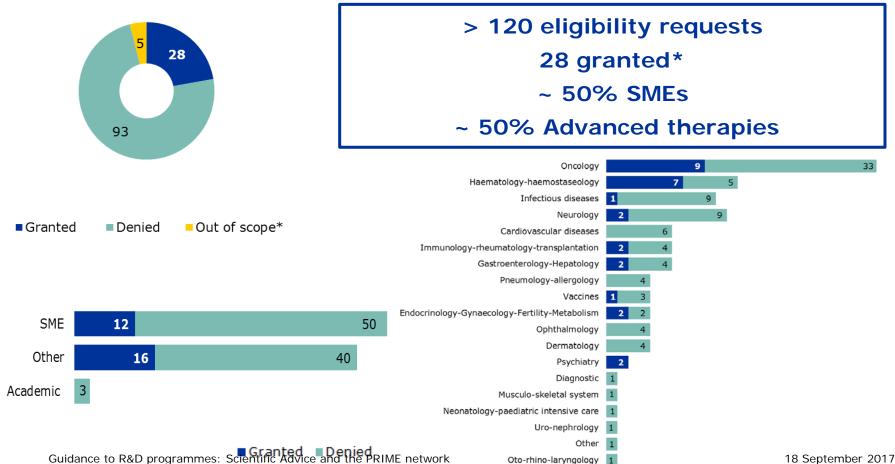
Early access tool, supporting patient access to innovative medicines.



- Written confirmation of PRIME eligibility and potential for accelerated assessment;
- Early CHMP Rapporteur appointment during development;
- Kick off meeting with multidisciplinary expertise from EU network;
- Enhanced scientific advice at key development milestones/decision points;
- EMA dedicated contact point;
- Guidance to R&D programmes: Scientific Advice and the PRIME network for SMEs and academics on Scientific Advice and the PRIME network

PRIME eligibility recommendations adopted by 20 July 2017







Take home message- Scientific Advice and PRIME

- Key tool to promote the collection of robust data on the benefits and risks of medicines
- Benefits patients as it promotes the generation of robust data and protects them from participating in badly designed or irrelevant clinical trials
- Key platform for our collaboration with health technology assessment
 (HTA) bodies which aims to facilitate patients' access to new medicines
- Central activity to stimulate innovation
- Regulatory incentive via PRIME is possible for medicinal products of major public health interest and in particular from the viewpoint of therapeutic innovation

Thank you for your attention

Further information

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Backup/extra slides



Transparency

Publication of monthly reports

- Broad characteristics
- Active substance (for eligible products only)
- High-level statistics

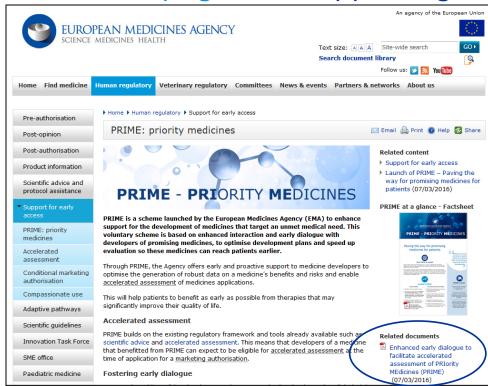


List of products granted eligibility to PRIME



18 September 2017

PRIME webpage and supporting documents





Q&A, templates, application form for applicants

Factsheet in lay language



18 September 2017 prime@ema.europa.eu



Early engagement in R&D: The Innovation Task Force (ITF)

The EU medicines regulatory system and the European Medicines Agency: an introduction for international regulators and non-governmental organisations

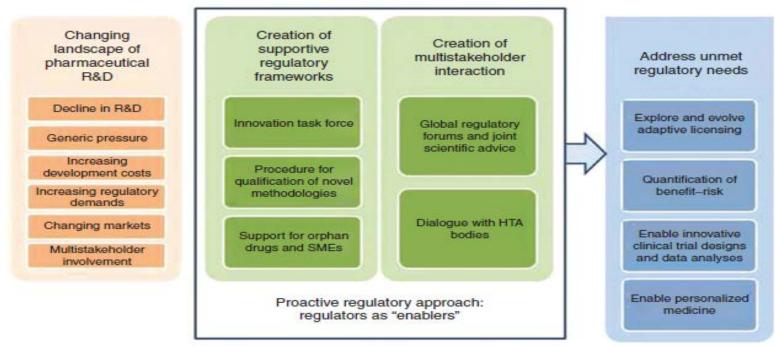
Presented by: Falk Ehmann

Science and Innovation Office; Human Medicines Research and Development Support Division; EMA





Regulators became gatekeepers and enablers...



Clinical pharmacology & Therapeutics; Advance online publication 3 April 2013. doi:10.1038/clpt.2013.14; F Ehmann, M Papaluca Amati, T Salmonson, M Posch, S Vamvakas, R Hemmings, HG Eichler and CK Schneider



Innovation Task Force (ITF)



Multidisciplinary platform

for preparatory dialogue
 and orientation on
 innovative methods,
technologies and medicines

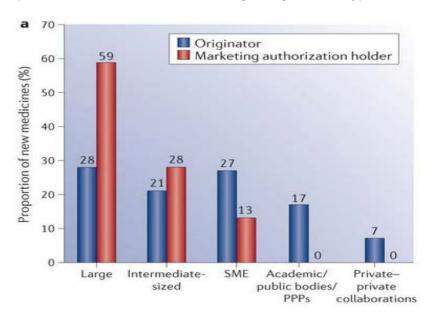
ITF objectives (ASAP):

- Assist Knowledge exchange on innovative strategies involving regulatory network
- Support drug development via early dialogue on
 - Scientific, legal and regulatory issues
 - Products, methodologies and technologies
- Address the impact of emerging therapies and technologies on current regulatory system
- Preparing for formal procedures

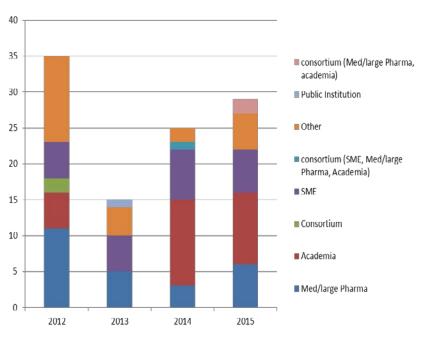


Users of the Innovation Task Force

Originator and the marketing authorization holder for 94 approved products evaluated, divided according to organization type



Regulatory watch: Where do new medicines originate from in the EU? Nature Reviews Drug Discovery Volume: 13, Pages: 92–93; Published online 31 January 2014



ITF users 2012-2015



Multidisciplinary ITF (internal) resources from across the Agency: **SME** Safety & Orphan Office **Efficacy** Stakeholder (5 therapeutic incl. Academia. areas) Industry Quality Clinical Pharmacology / Non-Clinical Risk Management ITF Gene- Cell-Secretariat **Tissue MP** Inspection Veterinary Medicines Regulatory **Affairs** IT **Scientific** Legal **Advice GCP Paediatrics Biostatistics**

5



ITF (external) ITF resources from EU and beyond:

- EU regulatory network including Committees, WPs and experts
- Research and other EU Public Institutions (Karolinska, Italian Nano Centre, Max-Planck, Frauenhofer)
- **EU Institutions** e.g. Joint Research Centre, EFSA, ECHA, EDQM, DG Research, -Sante, -Growth
- Expertise from International Regulators, e.g. FDA, PMDA/MHLW, HC, Swissmedic, TGA
- International Institutions (US-Nano Characterisation Laboratory, Mayo Clinic)
- Other bodies within the EU (ECDC, Medical device authorities)



Main tasks of the Innovation Task Force (ITF)

Coordination of ITF briefing meetings

ATMP classification review

• Art. 57 Scientific Opinion

→ With focus on:

Emerging therapies and technologies

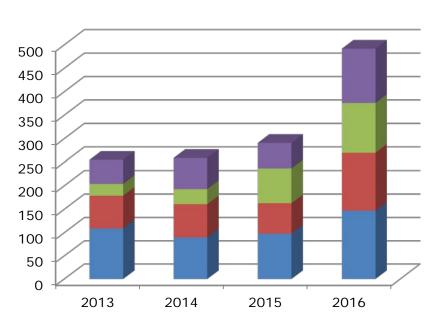
e.g. Nanomedicines, Synthetic Biology, Epigenetics,
Biomaterial, Health technologies (e- and m-health)

Borderline and combination products

e.g. devices, cosmetics, food



Involvement in ITF Briefing Meetings (internal and external):



Year of meetings	2013	2014	2015	2016
Number of meetings	23	27	33	41
ITF attendees	51	66	54	116
EMA attendees (non ITF)	25	32	74	106
WP experts from EU Regulatory Network	70	71	65	123
Industry attendees	109	90	98	147
Total	255	259	291	492

Impact of Innovation Task Force on other EMA procedures:

92 ITF Briefing meetings organised between 2014 – 2016, of which **80%** were submitted by **academia**, **SMEs and consortia** (ITF support focus)

- 15% are Advanced Therapies (Gene, Cell, Tissue engineered products)
- 14% consider seeking EU Orphan Drug designation (rare diseases)
- 20% consider interaction with the EMA Paediatric Committee (PDCO)
- 30% of applicants consider applying a formal scientific advice request
- 11% consider Qualification of methodology (e.g. Biomarker qualification)
- 10% consider Marketing Authorisation Application within foreseeable future



ITF Outcomes: Intel gathering and dissemination

ITF Briefing meetings and minutes

ATMP classifications

Art. 57 opinions

- ITF-BM Tracking database as constant tracking and intel gathering tool
- Annual intelligence gathering including stakeholder consultation
- Monthly briefing and feed-back provided to CHMP and other Committees
- Trainings organised (internal and external)
- Awareness sessions broadcasted via EU-NTC
- Recommendations for the organisation of workshops, expert meetings
- Recommendations for **Drafting guidance**
- Input in Horizon Scanning and EU Innovation Network

Take home messages

- Regulators became gatekeepers and enablers
- The EMA is open to discuss scientific, regulatory and technical aspects of innovative developments
- The ITF is the Regulator's tool for informal early engagement and feed-back

Further information

See: http://www.ema.europa.eu/ema/index.jsp?curl=pages/regulation/general_content_000334.jsp&mid=WC0b01ac05800ba1d9

Contact us at: ITFsecretariat@ema.europa.eu



Dealing with Unmet Medical Needs and Support to Innovation

Marketing authorisation under exceptional circumstances, Conditional Marketing Authorisation and Adaptive pathways

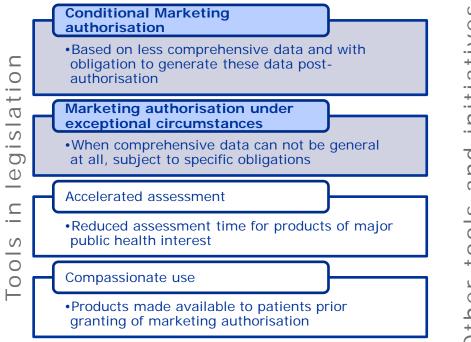
The EU medicines regulatory system and the European Medicines Agency: an introduction for international regulators and non-governmental organisations

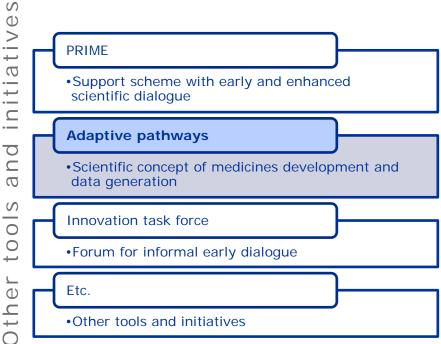
Presented by Zigmars Sebris on 18 September 2017 Regulatory Affairs Office, Human Medicines Evaluation Division





Regulatory tools and initiatives aimed at unmet medical needs







Tools in the Legislation



Conditional Marketing authorisation

Comprehensive data not yet available

Scope (at least 1)

Seriously debilitating or life-threatening diseases Emergency situations Orphan products

Criteria (all)

Positive benefit-risk balance

Comprehensive data can be provided after authorisation

Unmet medical needs will be addressed

Benefits of immediate availability outweigh the risks

'unmet medical needs' means a condition for which there exists no satisfactory method of diagnosis, prevention or treatment authorised in the Community or, even if such a method exists, in relation to which the medicinal product concerned will be of major therapeutic advantage to those affected

Commission Regulation (EC) No 507/2006



Marketing Authorisation Under Exceptional Circumstances

Impossible to provide comprehensive data on the efficacy and safety of the medicinal product under normal conditions of use, for objective, verifiable reasons

Criteria (at least 1)

the indications are encountered so rarely that it be expected to obtain comprehensive evidence, or

in the present state of scientific knowledge, comprehensive information cannot be provided, or

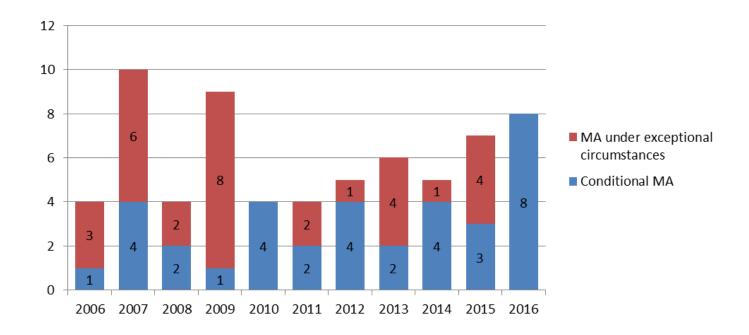
it would be contrary to generally accepted principles of medical ethics to collect such information



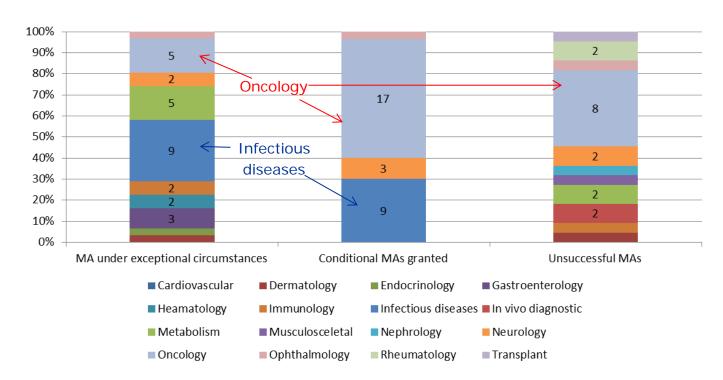
Comparison

Conditional MA	MA under exceptional circumstances		
Comprehensive data after authorisation	Comprehensive data not possible		
To later switch to 'standard' MA	To remain such indefinitely		
Valid for 1 year only (annual renewals)	Valid for 5 years (renewable) + annual re-assessment		
Possible in centralised procedure only	Possible in all registration procedures		
Specific Obligations + may have conditions	Specific obligations + may have conditions		

Last 10 years in numbers

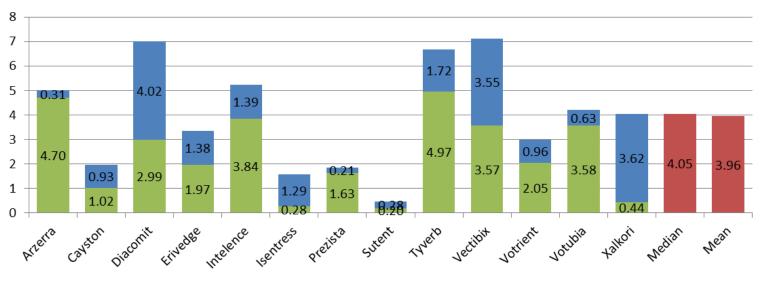


Therapeutic areas



Conversion of Conditional MA to standard MA

Time from granting CMA to conversion to full MA, all CMAs converted (N=13)



■ Statistics ■ Additional time to conversion (extensions + assessment of results + granting standard MA) ■ Initial time for completion of SOs

On average within 4 years a conditional MA is converted into a standard MA



Conditional MA – everolimus

For subependymal giant cell astrocytoma (SEGA) associated with tuberous sclerosis complex

In patients not amenable to surgery

Unmet need: lack of non-invasive pharmacological treatments (no satisfactory method)

Initial evidence

Phase II single arm study (28 pts)

Ongoing phase III double blind placebo controlled randomised study (117 patients)

Reduction in SEGA volume demonstrated

Safety database: 143 pts

Specific obligations

Final results from main part of the pivotal phase III study

Long-term follow up from both pivotal

studies

No changes in scope or deadlines

Conditional MA – raltegravir

For treatment of HIV-1 infection

In case of HIV-1 replication despite ongoing anti-retroviral therapy

Unmet need: activity against HIV that is resistant to many other antiretroviral agents

Approved following accelerated assessment

Initial evidence

16 and 24 week results from two ongoing phase III studies (350 + 349 pts.)

+ supportive studies

Results showed that addition of raltegravir can provide suppression of HIV replication that is sustained to 24 weeks

Safety database: 1214 pts.

Specific obligations

48 week data from pivotal studies

Implementation of a plan to monitor resistance and of observational safety data collection

Due date for one obligation extended by 10 months to duet o need to revise proposal based on CHMP comments



MA under Exceptional Circumstances – Iomitapide

For patients with homozygous familial hypercholesterolaemia

Rare, life-threatening

autosomal dominant genetic disease characterised by marked elevations in low density lipoprotein cholesterol

Criterion: rarity of the indication (comprehensive data cannot reasonably to be expected)

Initial evidence

Unblinded single arm study (29 patients in primary analysis)

Complemented by short term supportive studies

Consistent lipid lowering efficacy shown

Total safety database: 845 patients

Specific obligations

Long term prospective observational study to systematically collect information on the safety and effectiveness outcomes

- Annual reports provided each year
- No completion date for the activity

Information on EMA's website



Name 💠	Active substance	Therapeutic area	Date of authorisation \$\(/ \) refusal	•	0	C	E	<u> </u>	Status 💠
Natpar	parathyroid hormone	Hypoparathyroidism	2017-04-24	▼	0	C			Authorised
Alecensa	alectinib hydrochloride	Carcinoma, Non- Small-Cell Lung	2017-02-16	▼		С			Authorised
Ocaliva	obeticholic acid	Liver Cirrhosis, Biliary	2016-12-12	▼	0	С			Authorised
Name 💠	Active substance	Therapeutic area	Date of authorisation \$\displaystyle \text{refusal}	•	0	G	E	Δ	Status ‡
Brineura	cerliponase alfa	Neuronal Ceroid- Lipofuscinoses	2017-05-30	▼	0		Ε		Authorised
Dinutuximab beta Apeiron	dinutuximab beta	Neuroblastoma	2017-05-08	•	0		Ε		Authorised



1 March 2016 EMA/531801/2015 Human Medicines Research and Development Support Division

Development support and regulatory tools for early access to medicines

The EU pharmaceutical legislation includes a number of provisions in Regulation (EC) No 726/2004 aimed at fostering patients' early access to new medicines that address public health needs and are elioible to the centralised procedure, such as:

- accelerated assessment procedure which reduces the timeframe for review of an application for
 marketing authorisation from a maximum of 210 days to 150 days for medicinal products of major
 public health interest and in particular from the viewpoint of therapeutic innovation.
- for certain categories of medicinal products, the possibility to obtain a conditional marketing authorisation on the basis of less complete data than is normally the case and subject to specific obligations and additional comprehensive data to be provided post-authorisation. Conditional marketing authorisations are valid for one year on a renewable basis.
- the possibility for a compassionate use opinion by the CHMP defining at European level the
 criteria and conditions for use of medicinal products which are made available to patients through
 national patients' access programmes (prior to a marketing authorisation).

To optimise the use of the above regulatory tools, ENA has launched the PRIME scheme to support development of medicinal products of major public health interest through early and enhanced scientific and regulatory dialogue. This tool targets support to certain type of products eligible for accelerated assessment and falling within the scope of the centralised procedure. It builds also on existing regulatory tools in place within the European Union (EU) legal framework, including scientific advice/protocol assistance.

The table overleaf provides a high-level overview of the above legislative and development support tools to help sponsors identify when and how to use them.

However, there are a number of other development support activities, not covered in this tabular overview, carried out by the Agency including the following:

 The <u>Innovation Task Force (TTF)</u> which is a multidisciplinary group providing a forum for informal early dialogue with applicants, in particular micro, small and medium enterprises (SMEs) and academic sponsors, to proactively identify scientific, technical and regulatory issues related to emerging therapies and technologies.







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Any questions?

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Special Support: The Small and Medium enterprise (SME) initiative

The EU medicines regulatory system and the European Medicines Agency: an introduction for international regulators and non-governmental organisations

Presented by: Leonor Enes

SME Office; Stakeholders & Communication Division; European Medicines Agency



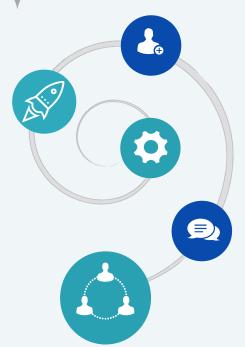


- 7 SME Regulation
- What the SME Office does
- Support to innovation stats
- 4 Marketing authorisations





SME Regulation



COMMISSION REGULATION (EC) No 2049/2005 of 15 December 2005

Aim: to promote innovation and the development of new medicines for human and veterinary use by SMEs

SME Office launch in December 2005

- A single contact point
- Assistance to SMEs Regulatory, administrative and procedural support
- Facilitates communication
 With SMEs in veterinary and human pharma sector
- Coordinating & networking Working closely with EU, SME partners and stakeholders





What the SME Office does



Assignment of SME status



Training and Awareness



Regulatory Assistance & SME briefing meetings



Partnering & Networking SME Register



Fee Incentives



Reporting and Planning

<u>SME Office annual report 2016</u>

<u>SME action plan (2017-2020)</u>



Translation Assistance



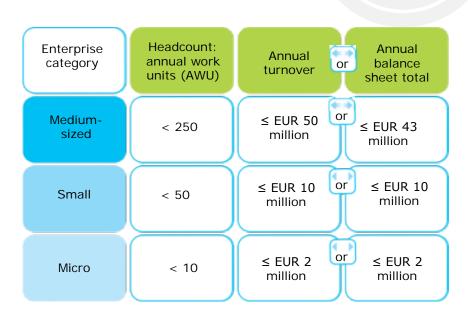
Assignment of SME status: SME definition

 Commission Recommendation 2003/361/EC defines micro, small and medium-sized enterprises



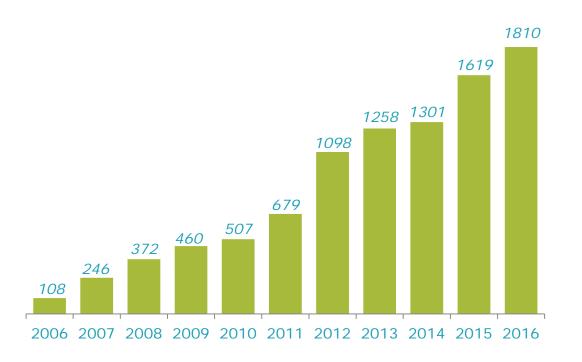
To qualify for SME status companies must:

- 1) be established in the EEA
- 2) meet the following thresholds:





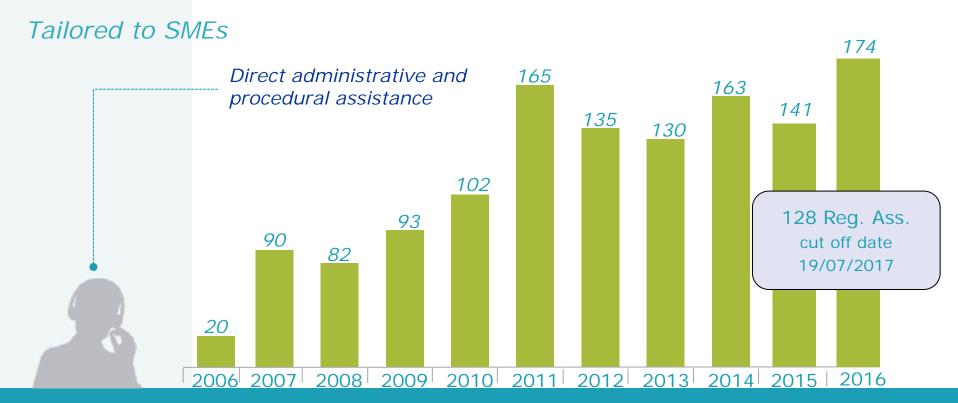
Registered SMEs



- From 28 countries across EU
- Top 3 countries : UK, Germany and France
- 41% micro, 34% small,25% medium
- Majority human (78%), 4% vet, 5% human/vet & 13% service providers
- Information on registered companies available in the SME public register



Regulatory assistance to SMEs



SME fee incentives

- Fee reductions and exemptions for scientific advice, scientific services, inspections & establishment of maximum residue limits
- Deferrals of the fee payable for an application for marketing authorisation or related inspection
- Conditional fee exemption
- Fee reductions and exemptions for post-authorisation procedures and pharmacovigilance activities
- Waiver of the MedDRA licensing fee for micro and small companies

Full details on all fees and fee reductions are available in: <u>Explanatory note on general fees payable to the European Medicines Agency</u> and <u>Explanatory note on pharmacovigilance fees payable to the European Medicines Agency</u>



Training & awareness for SMEs



Info days

Annual or Biannual regulatory training course tailored for SMEs

<u>Supporting innovative medicines' development</u> and early access; 17/11/2017



Newsletters

Circulated quarterly; published on the FMA Website.



Announcements

Information sent by email to SMEs and stakeholders



SME User Guide Updated regularly Provide training & ease the access to regulatory information





Support to innovation – SME briefing meetings

- provides a platform for early dialogue with SME to discuss regulatory strategy of medicinal product development and navigate the range of procedures and incentives available
- multidisciplinary group, co-operation with other EMA offices (scientific advice, paediatrics, orphans, regulatory affairs, etc)
- open to medicinal products for human and veterinary use
- free of charge

2005 - 2015: **65**

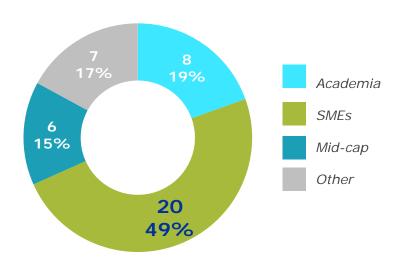
2016: **13**

2017 (Jan - July): 9



Support to innovation - Innovation Task Force & ATMPs

ITF briefing meetings (2016)



20 out of 41 ITF meetings in 2016 were for SMEs applicants

ATMPs

Certification of quality and non-clinical data for ATMPs intended for human use: for SMEs only





Support to innovation - Scientific Advice & Protocol Assistance

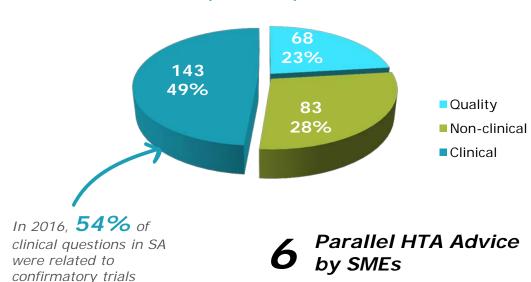
2016

177 SA and PA submitted by SMEs

26% of all SA by SMEs 46% of all PA by SMEs

Human medicines

Scope of scientific advice - human products - SMEs (2011-2016)

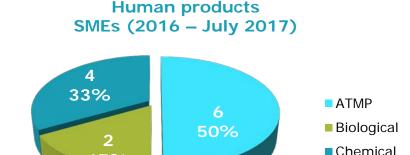




Support to innovation - PRIME (PRIority MEdicines)

Key figures (2016-July 2017)

- 121 applications received up to July 2017 (half by SMEs)
- 28 medicines granted PRIME of which 12 are SMFs
 - 1 SME early entrance (SMEs can apply earlier on the basis of compelling nonclinical data and tolerability data from initial clinical trials)
 - additional SME fee reductions for scientific advice



Therapeutic areas:

17%

- Oncology
- Immunology
- Haematology

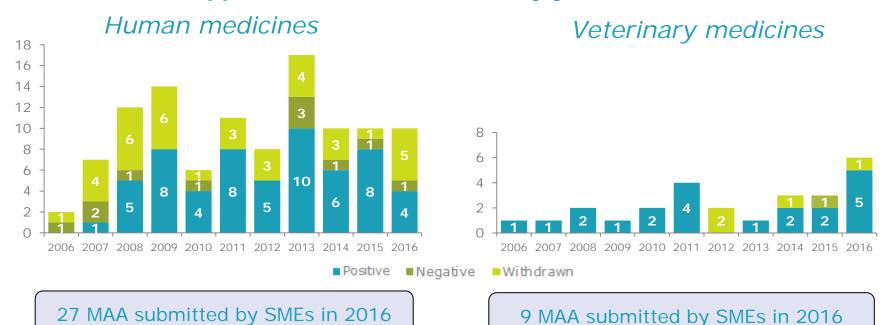
- Gastroenterology
- Neurology
- Infections diseases





Marketing authorisations

SME Applicants – MAA outcome by year (2006-2016)





Take home messages

- SMEs are a source of pharmaceutical innovation
- The EMA remains committed to fostering an environment which provides incentives to SMEs: awareness of the EMA SME initiative, training and education, supporting innovative medicines' developments, and further engaging with SMEs, partners and stakeholders

Further information

See: <u>supporting SMEs</u>

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