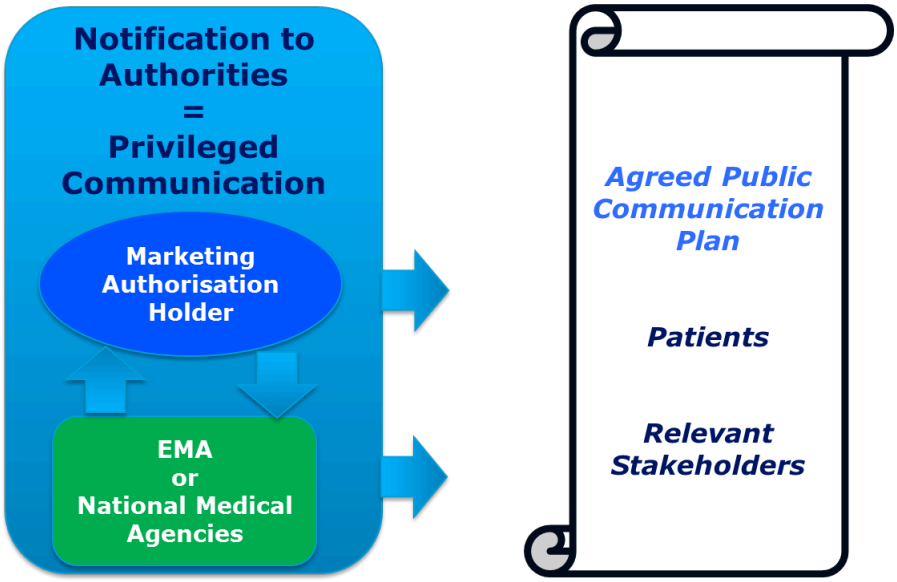
Quality and Manufacturing Driven Supply Disruptions[1]

Industry Communication Principles to Authorities

An Industry Collaborative Contribution to the EMA (European Medicines Agency) Initiative to Provide European Union Patients with Continuous Access to Medicines



[1] product supply disruptions (US) / abnormal restriction in supply (EU) (convergence in terminology)

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Executive Summary

Ensuring the availability of medicines to patients is a key public health objective, and the pharmaceutical industry is committed to providing patients with a secure and continuous supply of medicines. Furthermore, it is committed to working in partnership with other stakeholders in the distribution chain, and with regulators, to ensure that this objective is met.

There are multiple causes for medicines shortages, including those related to quality and manufacturing issues, which Marketing Authorisation Holders (MAHs) are obligated to notify to Competent Authorities (CAs). Effective communication is one element that can contribute to the overall prevention and management of medicines shortages. This paper specifically addresses the privileged communication between industry and Competent Authorities when potential disruptions to supply[1] due to manufacturing and quality issues are identified. It was developed by the pharmaceutical industry through its European trade associations, (i.e. AESGP, EFPIA, EGA and PPTA) and complements the output from the work stream led by the professional organisations, ISPE & PDA. This was agreed amongst all in November 2013, following the EMA October workshop on the prevention of supply disruptions due to manufacturing and quality issues.

The effective communication of potential shortages of medicines by MAHs to EEA Competent Authorities is compromised by the diversity in expectations and data requirements across the EEA countries and the EMA. Streamlining and harmonising reporting requirements will offer opportunities to:

1) Promote more consistent and relevant reporting by MAHs
2) Facilitate co-ordinated action between Competent Authorities (e.g. risk assessment and communication of the potential impact on public health)
3) Provide standardised data to enable analysis of shortages (e.g. causes of shortages) and accordingly, identification and prioritisation of mitigation strategies.

To realise these benefits a framework is proposed that includes the following elements:

- An identical trigger point for notification based on: i) an agreed definition of a meaningful disruption, and ii) a triage process that evaluates the risk associated with a potential supply disruption
- A harmonised reporting content and format
- An agreed time point and recipient of the information for all nationally and centrally approved products.

Looking more broadly at communications associated with shortages of medicines it is evident that there are further opportunities for improvements through, for example, harmonised definitions for potential and actual shortages, trigger points for initiating the notification and flow of information along the whole supply and distribution chains (i.e. actors other than the MAH), and principles for aligned public communication plan (possibly related to the current mechanisms for safety communication).

The complexities associated with medicines shortages (causes, products, markets, timing etc.) necessitate an integrated solution involving all stakeholders. The framework for privileged notification communication between the MAH and Competent Authority described in this paper will not solve medicines shortages. Nevertheless, it can form part of a more comprehensive approach to prevent and mitigate medicines shortages when combined with the outputs from the ISPE and PDA work streams.

[1] product supply disruptions (US) / abnormal restriction in supply (EU) (convergence in terminology)

Introduction

Ensuring the availability of medicines to patients is a key public health objective, and the pharmaceutical industry is committed to providing patients with a secure and continuous supply of medicines. Furthermore, it is committed to working in partnership with other stakeholders in the distribution chain, and with regulators, to ensure that this objective is met.

The complexity of causes for medicines shortages calls for an integrated approach involving both a sophisticated analysis of each individual cause and their combination. They include, but are not limited to, quality and manufacturing related issues as illustrated in Figure 1.

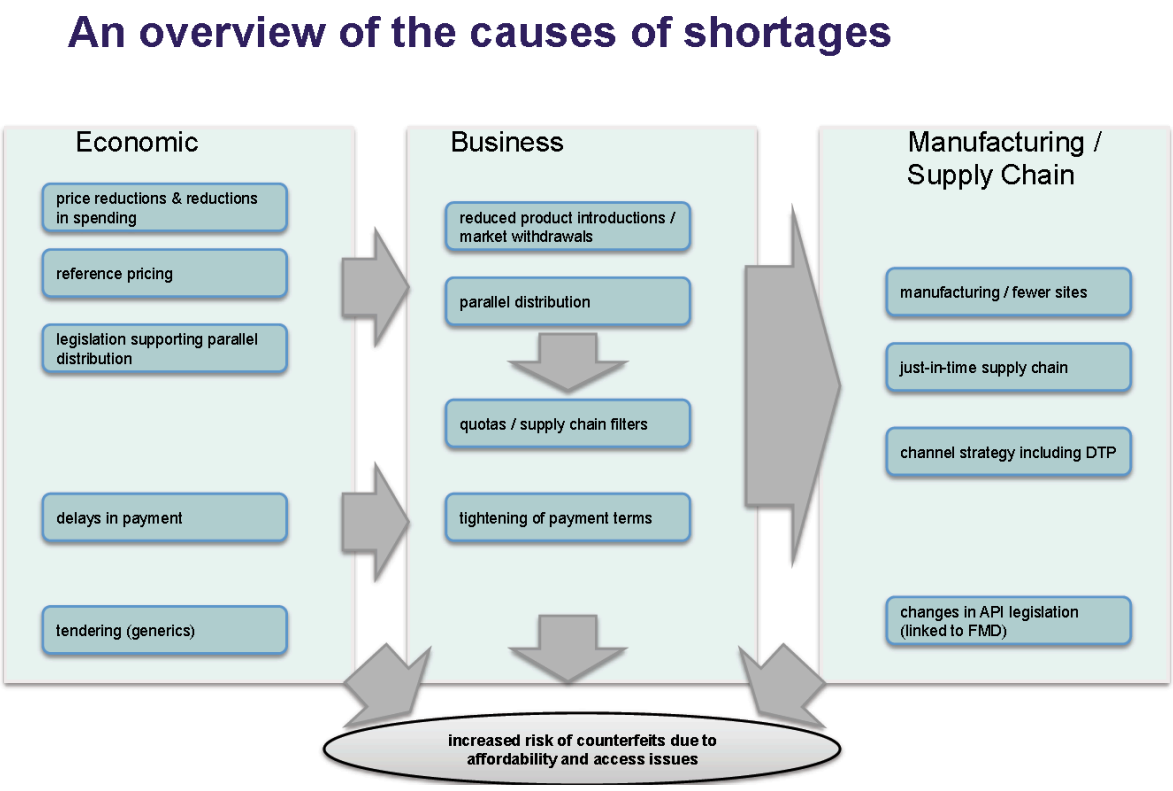

Figure 1 | From birgli report 2013 [2]

In its "Reflection paper on medicinal product supply shortages caused by manufacturing / Good Manufacturing Practice Compliance problems", the EMA addresses this particular aspect of drug shortages **[1]**.

EMA, national competent authorities (NCAs) and stakeholders debated this reflection paper in a workshop in October 2013; this led to the initiation of a collaborative work composed of two work streams, as follows:

1. Prevention
   - Risk based approach for the prevention and management of drug shortages – PDA (November 2014 Technical Report available at: http://www.pda.org/scientific-and-regulatory-affairs/scientific-resources/technical-reports);
   - Drug Shortage Prevention Plan – A holistic view from root cause to prevention – ISPE (October 2014 document at http://www.ispe.org/drugshortagespreventionplan.pdf)
2. Communication
   - Communication of information on supply disruption caused by quality and manufacturing issues - AESGP/EFPIA/EGA/PPTA.

This paper specifically addresses work stream 2, i.e. the industry reporting to authorities of potential supply disruptions arising from quality and manufacturing issues, the so-called 'privileged communication'. Industry identified opportunities for the optimisation of today's communication process within the current EU legislative framework as one element contributing to the overall prevention and management of medicines shortages.

Although communication principles are not per se a remedy to medicines shortages, an improved communication process around potential supply disruptions due to manufacturing and quality issues can form part of a more comprehensive approach to prevent and mitigate medicines shortages when combined with the outputs from the ISPE/PDA work stream. Communication principles should always be part of a more comprehensive action plan combining concrete counter-measures to the actual identified causes.

This paper further explores how healthcare professionals (HCPs) and patients could benefit from this initiative by becoming part of an exercise of wider scope involving all supply and distribution chain operators.

Scope

This paper was developed by the pharmaceutical industry through its trade associations, i.e. AESGP, EFPIA, EGA and PPTA. It solely addresses the **privileged communication between marketing authorisation holders (MAHs) and competent authorities (CAs)** when **potential supply disruptions due to manufacturing and quality issues are identified**.

This paper does not aim to address other important communication elements outside this privileged communication, and especially:

- The coordination between CAs;
- The development of an agreed action plan between MAH and CA, including post-notification measures, and
- The notification of potential disruption to supply due to reasons other than manufacturing and quality issues.

Problem Statement

In the EU, MAHs have a legal obligation to notify CAs of a disruption in supply due to manufacturing and quality issues; see Appendix 1.

However, the particulars for the notification of what may lead to a potential drug shortage (see definitions, page 14) vary across member states (MSs) and EMA. Variability especially lies in the following areas:

- **What** should be notified? i.e. a harmonised definition of a potential drug shortage in Europe is lacking;
- **When** should a notification occur?
- **What** information should be included in the notification?
- **How** should the information between CAs be coordinated, especially when potential shortages may affect some MSs and not others?
- **How** will the reported information be assessed and processed? e.g. will it be made public? Which criteria will be used for this decision?

As a consequence, a very heterogeneous picture can be drawn in the EU where notification data packages differ significantly from one country to another. These divergent country

requirements (elements of information and level of detail) imply the gathering of multiple documents regarding the concerned product supply disruption, e.g.:

- Cause,
- Estimated duration / resolution,
- Estimated impact (e.g. sales data for the concerned market),
- Existence of alternative treatments,
- Mitigation and/or Communication Plans where envisaged.

The diversity in data packages and expectations from the 28 EU member states/EEA countries NCAs and EMA creates an unnecessarily complex notification process. Industry believes that a **harmonised notification process across the EU will bring consistency to the handling and processing of the information.**

Streamlining and harmonising reporting requirements will offer opportunities to:

1) Promote more consistent and relevant reporting by MAHs
2) Facilitate co-ordinated action between Competent Authorities (e.g. risk assessment and communication of the potential impact on public health)
3) Provide standardised data to enable analysis of shortages (e.g. causes of shortages) and accordingly, identification and prioritisation of mitigation strategies.

Deliverables

Desired State for Industry Notification to Authorities

Industry would welcome a harmonised and risk-proportionate notification framework, uniformly implemented by all CAs. If a supply disruption develops, it is important that the MAH notification be timely, appropriate and effective; this will facilitate concerted efforts by industry and CAs, where necessary, towards avoiding and minimising drug shortages. Healthcare professionals and patients will also benefit from appropriate communication, where patient health may be impacted.

To realise these benefits a framework is proposed that includes the following elements:

- An identical trigger point for notification based on: i) an agreed definition of a meaningful disruption, and ii) a triage process that evaluates the risk associated with a potential supply disruption;
- A harmonised reporting content and format, and
- An agreed time point and recipient of the information for all nationally and centrally approved products.

Any information in the public domain related to a potential shortage could create further disruption of the supply of drug products at different levels in the distribution chain by inadvertently encouraging hoarding, for example. Therefore, the public release of information related to potential supply disruption due to manufacturing and quality issues should be carefully assessed to avoid creating this problem, and messaging from the MAH and CA should be aligned. Thus, notifications between the MAH and CAs should be kept confidential until public communication is required and agreed upon by both parties.

1/ Trigger Point for Notification

The legal framework (Appendix 1) is interpreted as providing a definition of the trigger point for notification as follows:

- Notification shall be made when there could be a meaningful disruption in supply of medicines due to manufacturing and quality issues i.e. when normal volumes of medicines cannot be delivered for further distribution.

Situations that may trigger a meaningful disruption in supply of medicines due to manufacturing and quality issues include:

- When an internal or external situation (a single event or a combination of events) regarding a manufacturing or quality issue has occurred e.g.:
    - Supply disruption (e.g. delay, unavailability) of an ingredient or component,
    - Drug Product manufacturing difficulties / cGMP,
    - Situation related to complying with cGDP,
    - Delay in shipping of the drug product.
- When an external situation has a potential impact on the planned manufacturing capacity, e.g.:
    - Unexpected delay in regulatory approval,
    - Unexpected increase in the demand for the drug product,
    - Theft / Counterfeiting,
    - Natural disasters or fire.

An interruption in manufacturing due to matters such as routine maintenance that do not include significant changes in manufacturing is not a meaningful disruption so long as the manufacturer (see definition page 14) expects to resume operations in a short period of time.

2/ Notification Content and Format

Industry proposes that a harmonised data requirements is adopted by CAs across the EU, for the notification of a meaningful disruption in supply due to manufacturing and quality issues. Managing a disruption in supply can be complex and time-pressured and the mechanism for notifying Competent Authorities should be transparent, simple and consistent to facilitate rapid and effective communication.

The following data could be considered for inclusion in a harmonised template for notification of a meaningful disruption in supply related to manufacturing and quality issues:

- Marketing authorisation holder's details:
    - Company name and address
    - Company contact person and contact information
- Product details:
    - Product name
    - National code/registration number
    - Dosage form
    - Presentation
    - Active substance(s)
    - Risk level assessment (level A, B, or C - see explanations below)
    - For risk level A and B, indications and treatment alternatives
- Causes for potential shortage (one or several boxes to be ticked)
- Further details of the shortage and expected duration (anticipated date as to when the medicinal product is no longer available on the market and when it is expected to be available again)
- Steps taken/planned to address shortage
- Impacted countries
- Notification to other parties
- Name of the person completing the form and date

Clarification of CAs expectations for reporting disruption in supply due to manufacturing and quality issues could also be helped by citing the applicable sections of the legislation and relevant guidelines since there are similar reporting requirements when products are withdrawn from the market.

Furthermore, the use of a single, uniform template for notification will facilitate consistent reporting by MAHs and dialogue between affected CAs. Industry recommends further dialogue between all stakeholders to establish such a template, which should be easily accessed by posting on relevant webpages on the EMA (e.g. Medicine shortages) and CA websites.

To enable industry and CAs to focus resources in managing the most critical supply disruptions, a risk-based approach to categorising the potential impact to the patient could be considered, such as that proposed by PDA:

- **High risk - Risk Level A**
- **Medium risk - Risk Level B**
- **Low risk - Risk Level C**

The evaluation of the level of risk can be made according to the grid given in Figure 2.

Define Impact to Patient			Availability of Alternatives		
			No Alternatives Available	Alternative Products Available: Similar Therapy	Exact Product Available but in Other Presentations
Therapeutic Use & Consequence if product not available	Medically Necessary Product, Life Supporting or Life Sustaining	Fatal or severe irreversible harm if the patient is not treated with the product	Risk Level A	Risk Level A	Risk Level B
	Acute Short Term or Chronic Long Term	Severe harm but reversible if patient is not treated with the product	Risk Level A	Risk Level B	Risk Level C
	Other Indications	Inconvenience if patient is not treated with the product	Risk Level B	Risk Level C	Risk Level C

Figure 2 | PDA risk-based triage for drug shortage prevention [3]

For a definition of 'Life supporting or life sustaining drug products', see page 14.

The adoption of a risk-based approach would also facilitate adjustment of the level of notification by industry – if changes are made to the framework for notification it will be important to avoid both over-notification (CAs are overloaded with notifications of potential shortages with low or no impact to patients) and under-notification (CAs are not informed in a timely manner of potential shortages with significant impact to patients). Encouraging consistent notification of the most critical (i.e. higher risk) potential shortages, rather than all potential shortages, will maximise industry and CAs efforts to successfully mitigate and prevent shortages of medicines.

3/ When to Report and to Whom

It is important that industry and CAs share a common understanding of the evolution of potential supply disruptions and at what point an issue becomes likely to lead to a meaningful disruption. This is of particular concern in determining the 'Trigger Point' and whether the manufacturer has met the requirement to notify the CA(s) in line with the legislative requirements i.e. 'Such notification shall, other than in exceptional circumstances, be made no less than two months before the interruption in the placing on the market of the product.'

When a MAH initially identifies a potential issue, the manufacturer typically pursues alternate plans to avoid a supply disruption. On initial assessment the alternate plan may appear to be adequate to avoid a likely supply disruption, but as the plan progresses and other events occur, a supply disruption may become "likely". It is important to clarify that the trigger to notification would be at the time the applicant becomes aware or reasonably should have become aware that a meaningful disruption is likely to occur, which in some cases will be after an initial potential disruption is identified. This is consistent with a risk identification and risk mitigation approach to manufacturing **[4]**.

MAHs should notify CAs of impacted countries as follows:

- Where a nationally approved product is concerned, the notification should go to the impacted national agencies **[5]**
- Where a centrally approved product is concerned, the notification should go to the EMA and impacted national agencies **[5]**

A single point of contact at each National Agency and the EMA should be designated e.g. on each agency website to facilitate communication and coordination. This will facilitate a coordinated and standardised approach for assessing the impact on public health and for planning potential communications to healthcare professionals (see definition page 14) and patients.

All the information supplied by the MAH is expected to be treated as 'confidential'. This information should be handled in a similar way to the requirements for safety communications **[6]** before it reaches the public domain.

4/ Prerequisite for delivering the desired state

To successfully harmonise the notification process as described in the 3 points above, a comprehensive evaluation of existing notification practices in EEA Member States might be necessary to identify any requirements defined in national legislation together with possible best practices.

The framework described above entails the reporting to CAs of all potential cases of supply disruption, which are risk-categorised (**A**, **B** or **C**) by the MAHs. However, some of the current national reporting systems focus on 'life saving medicines' or a more restricted list of medicines, and it would be beneficial to adopt this concept across the EEA.

Adjusting the notification framework so that industry and regulatory resources are focused on timely notification of potential supply disruptions representing the highest risk to patients (i.e. maximising signal versus noise in the notification framework) will require ongoing review and dialogue by industry and regulators during the implementation of proposed changes. Industry would welcome the opportunity to work collaboratively with regulators to develop the implementation plan.

In 2015, industry further recommends a second workshop between EMA, national competent authorities (NCAs) and all supply chain actors, as a follow up to the October 2013 event, and to review progress.

Anticipated benefits of the proposed 'desired state' for harmonised notification

1/ Facilitated preparation of an agreed plan for public communication

A standardised notification and reporting process will allow the information to be gathered in a consistent manner and as such will facilitate the coordination between CAs when assessing:

- The risk of a potential drug shortage situation becoming an actual shortage, and
- The impact on public health.

Consistent notification will also facilitate Competent Authorities' actions e.g. assessing the disruption, coordinating and escalating to other CAs, issuing treatment recommendations and agreeing on the communication plan with the concerned MAH(s) - see Figure 3.

An important action can be to initiate alternative routes of supply to secure the delivery of the concerned medicinal product e.g. by managing the existing stocks in the distribution chain. Communication to distribution chain stakeholders should balance the health risk to the patient against the risk of further aggravating the supply disruption e.g. due to potential hoarding at different levels in the distribution chain.

It is crucial that a plan for communication is agreed between the relevant CA(s) and MAH(s) before any public communication outside the privileged channel is initiated. This is especially important in circumstances where there is no alternative available to the medicinal product concerned, e.g. originator product or off-patent product, where only one manufacturing site exists. Similarly, when a medicine is manufactured at different locations, disruption affecting a particular site is likely to have limited or no effect on patients. Furthermore, and taking into account the global nature of pharmaceutical products manufacturing operations, considerations should be given to a further exchange of information with CAs from other regions in the world. Dialogue may also be necessary with key export and import regions/countries.

Finally, the agreed communication plan should include measures to report the status of shortages and resolution after initial notification.

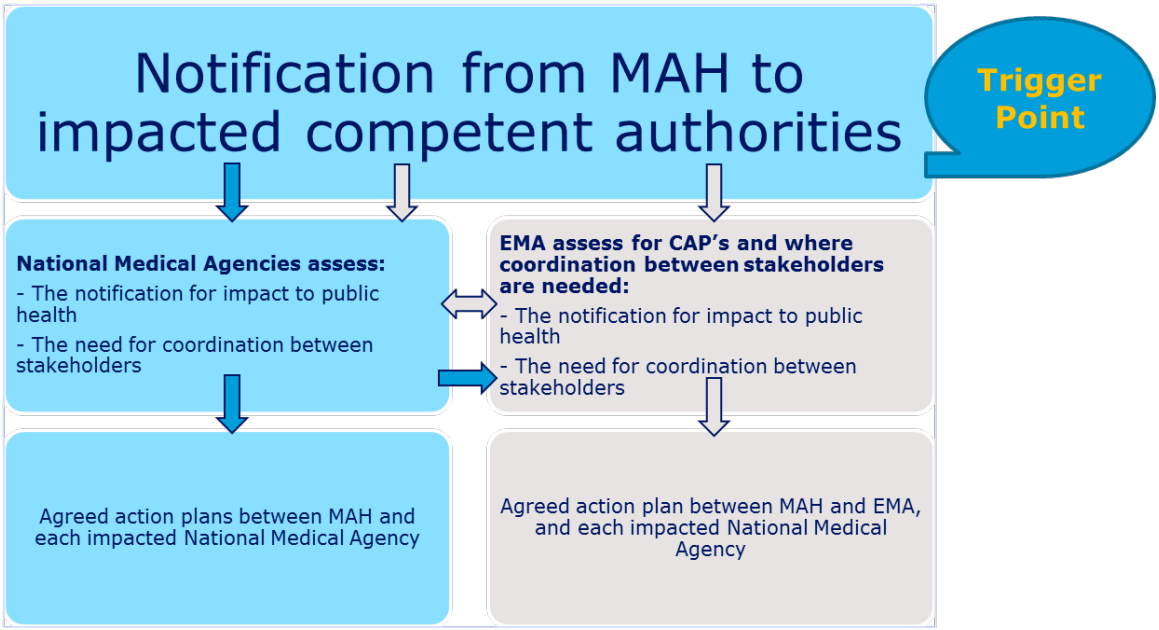

Figure 3 | Assessment, Coordination and Escalation

2/ Possible Data Trending on Causes for Supply Disruption due to Manufacturing and Quality issues

A uniform and consistent notification content and format should provide a qualitative list of causes to potential supply disruptions due to manufacturing and quality issues. Information generated through the notification system could then be used to evaluate the extent, nature and trends in supply disruptions associated with manufacturing and quality issues.

The provision of objective and consistent information about supply disruptions across the EU would be a critical input for the ongoing dialogue between CAs and industry on shortages of medicines. Furthermore, it will provide useful information on the impact of the overall inter-associations project deliverables (recommendations from the two work streams) on preventing and minimising the incidence of supply disruptions related to manufacturing and quality issues.

Ultimate goal: expand the exercise to all distribution chain actors for appropriate communication to Healthcare Professionals (HCPs) and patients

Across the EU, several information systems on drug shortages have been developed by one or several distribution chain actors or CAs. The key features of these systems vary from one country to another as they have been developed independently (see Appendix 2). Consequently, public communication is very heterogeneous and should be optimised for the benefit of the patient. The information gathered in Appendix 2 especially illustrates the following observations:

- Multiple repositories/models, i.e. Stakeholders incl. voluntary programmes or Government;
- Multiple definitions used for e.g. 'Shortages', 'Essential/critical medicines';
- Multiple purposes for making information available e.g.: Suggestion of therapeutic alternatives; Overview of exports / imports stock levels;
- Voluntary or legally required initiative.

In addition to manufacturing and quality issues, causes for disruption of supply to the EU market are many and complex, including e.g. unpredictable variability in demand, market fragmentation, globalisation of manufacturing and distribution activities as shown in Figure 1 and described in **[2]**.

The streamlining exercise undertaken for the notification process on supply disruption caused by manufacturing and quality issues could therefore be expanded to include information from other supply distribution chain operators, as illustrated in Figure 4. Such an integrated mechanism for communication would allow more complete data trending for all types of supply and distribution disruptions.

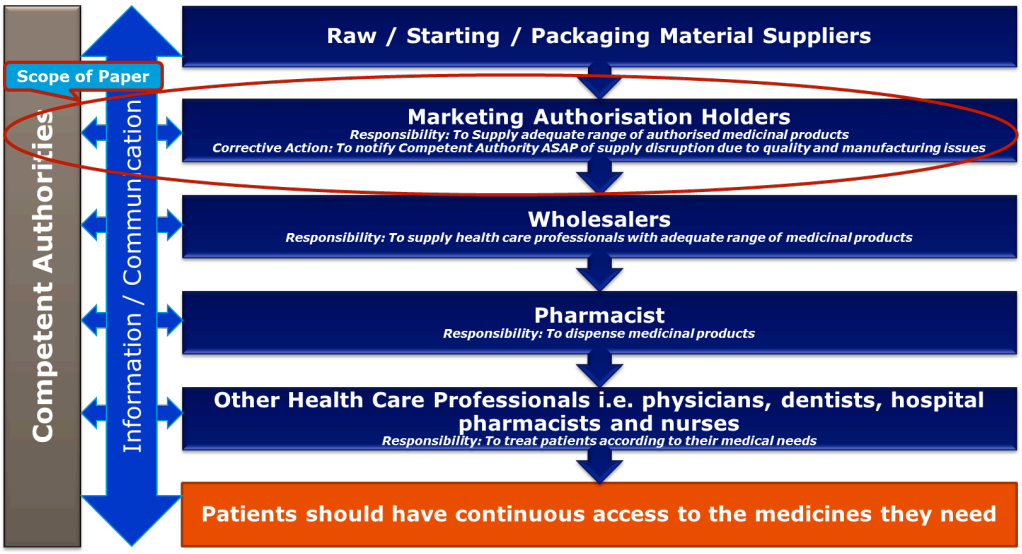

Figure 4 | Scope for a comprehensive communication mechanism

Conclusion

Marketing Authorisation Holders are obligated to notify Competent Authorities about medicines supply disruptions related to quality and manufacturing issues. Effective communication is one element that can contribute to the overall prevention and management of medicines shortages. However, such effective communication is compromised by the diversity in expectations and data requirements across the EEA countries and the EMA. The pharmaceutical industry therefore proposes a framework for improving the communication that includes:

- An identical trigger point for notification based on: i) agreed definition of a meaningful disruption to supply, and ii) triage process that evaluates the risk associated with a potential supply disruption;
- A harmonised reporting content and format;
- An agreed time point and recipient of the information for all nationally and centrally approved products.

Industry recognises that building such a framework requires collaboration by the stakeholders and looks forward to discussing the proposals in this paper with CAs. Furthermore, additional benefits could be gained if improved communication principles are considered beyond the privileged MAH-CA notification described in this paper. Considering the end-to-end supply & distribution chain, a comprehensive assessment and improvement of communications involving all supply & distribution chain operators, including wholesale distributors, could encompass the following elements:

- Harmonised definition of drug shortage
- Harmonised principles for an agreed public communication plan (linked to the current mechanisms for safety communication), and
- Flow of information along the supply and distribution chains.

Industry supports the collaborative efforts to address medicines shortages. The complexities associated with medicines shortages (causes, products, markets, timing etc.) necessitate an integrated solution involving all stakeholders. The framework for privileged notification communication between the MAH and CAs described in this paper will not solve medicines shortages. Nevertheless it can form part of a more comprehensive approach to prevent and mitigate medicines shortages when combined with the outputs from the ISPE and PDA work streams.

In 2015, industry further recommends a second workshop between EMA, NCAs and all supply chain actors, as a follow up to the October 2013 event, and to review progress.

Definitions

Continual Improvement: recurring activity to increase the ability to fulfil requirements ([7] and ISO 9000:2005).

Healthcare Professionals: when performing public communications to healthcare professionals, healthcare professionals are defined as medically qualified persons, such as physicians, dentists, pharmacists and nurses. This definition is as given in the Annex to the GVP - see [8].

Life Supporting or Life Sustaining Drug Product: life supporting or life sustaining is used to describe a drug product that is essential to, or that yields information that is essential to, the restoration or continuation of a bodily function important to the continuation of human life – see [9].

Manufacture: all operations of purchase of materials and products, Production, Quality Control, release, storage, distribution of medicinal products and the related controls, as defined in Eudralex - see [10].

Meaningful Disruption: a meaningful disruption is a change in production that is reasonably likely to lead to a reduction in the supply of a drug by a manufacturer that is more than negligible and affects the ability of the manufacturer to fill orders or meet expected demand for its product.

A meaningful disruption is not an interruption in manufacturing due to matters such as routine maintenance and does not include insignificant changes in manufacturing so long as the manufacturer expects to resume operations in a short period of time - see [9].

Potential Drug Shortage: a potential drug shortage is described as the occurrence of internal or external situations (single or in a combination of both), which could result in an interruption of supplies of a medicinal product if not properly addressed and controlled. Such potential drug shortages very often arise from special cause problems – EFPIA Good Practice, see [4].

Abbreviations

AESGP	Association of the European Self-Medication Industry
cGDP	Current Good Distribution Practice
cGMP	Current Good Manufacturing Practice
CA	Competent Authority
DTP	Direct to Pharmacy
EEA	European Economic Area, i.e. 28 member states, plus Iceland, Liechtenstein and Norway
EFPIA	European Federation of Pharmaceutical Industries and Associations
EGA	European Generic medicines Association;
EMA	European Medicines Agency
EU	European Union
HCPs	Health Care Professionals
ISPE	International Society for Pharmaceutical Engineering
MAH	Marketing Authorisation Holder
MS	Member State
NCA	National Competent Authority
PDA	Parenteral Drug Association
PPTA	Plasma Protein Therapeutics Association

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Appendix 1: EU Legal Framework

Marketing Authorisation Holders (MAHs) obligations, as laid down in Directive 2001/83 [11] as amended

- Article 23a: 'If the product ceases to be placed on the market of a Member State, either temporarily or permanently, the marketing authorisation holder shall notify the competent authority of that Member State. Such notification shall, other than in exceptional circumstances, be made no less than two months before the interruption in the placing on the market of the product. The marketing authorisation holder shall inform the competent authority of the reasons for such action in accordance with Article 123(2).'

- Article 81: 'The holder of a marketing authorisation for a medicinal product and the distributors of the said medicinal product actually placed on the market in a Member State shall, within the limits of their responsibilities, ensure appropriate and continued supplies of that medicinal product to pharmacies and persons authorised to supply medicinal products so that the needs of patients in the Member State in question are covered.'

- Article 123(2): 'The marketing authorisation holder shall be obliged to notify Member States forthwith of any action taken by him to suspend the marketing of a medicinal product, to withdraw a medicinal product from the market, to request the withdrawal of a marketing authorisation or not to apply for the renewal of a marketing authorisation, together with the reasons for such action. The marketing authorisation holder shall in particular declare if such action is linked to any of the grounds set out in Articles 116 and 117. In such case, Member States shall ensure that this information is brought to the attention of the Agency.'

Manufacturing Authorisation Holder obligations, as laid down in Directive 2003/94 [12]

Article 13: 'The manufacturer shall inform the competent authority of any defect that could result in a recall or abnormal restriction on supply and, in so far as is possible, indicate the countries of destination.'

Appendix 2: 'information systems' in place

Note: the table below is non-exhaustive, and only provides information from EMA and some EU member states, where gathered in time for inclusion in this Appendix

	Austria	Belgium	Czech Republic	EMA	France	Germany	Lithuania	Netherlands	Portugal	Slovakia
System Host / Funder	In planning phase									
Wholesalers National Association	x									
Pharmacists National Association								x		
Agency / Drug Authority		x	x	x	x	x	x		x	x
Information provider: Voluntary / Legal basis										
Manufacturers	x [1]					x				
Marketing Autorisation Holders		x	x		x [2]				x	
Wholesalers	x	x			x		x		x	x
Pharmacists					x			x [3]	x	x
Hospital pharmacists					x					
Agency				x			x		x	
	[1] also following automated wholesalers requests			*Trigger mechanism to select and release the information is unclear to MAHs*	[2] for essential drugs			[3] Info checked with MAH		
Information provided										
Type of products	All	All	All	Where > 1 MS affected	Major therapeutic classes		All registred medicines	Life saving medicines	Agency list (currently 47 medicines)	
Consumption information							Monthly sales		x	x
Import notifications										x
Export notifications									x	
Expected date of availability	x	x	x			x		x		
Explanation/reasons for shortages	x	x		x	x	x		x		
Contact person	x	x				x				
Recommendations for alternative medications	x	x By Agency			x By Agency	x		x		x
Other information to HCPs and/or patients				x						
When to provide information?		> 2 wks of shortage, to be notifed no later than 1 wk after start of shortage				Disruptions or rise in demand > 2 weeks		> 2 weeks of shortage		
Information available to	Manufacturers and wholesalers	Public	Public	Public	Public	Public	Public	Public	MAHs, wholesalers, pharmacists and Agency	Agency
Duration of display of information	Untill supply to 1st wholesaler is resumed	Daily update	Untill information changes	Untill supply is resumed (?)	Untill supply to 1st wholesaler is resumed			Untill supply to 1st wholesaler is resumed		