EUROPEAN MEDICINES AGENCY
SCIENCE MEDICINES HEALTH

HMA
Heads of Medicines Agencies

European Commission

Electronic product information for medicines in the EU

Report from an EMA–HMA–EC workshop held on 28 November 2018

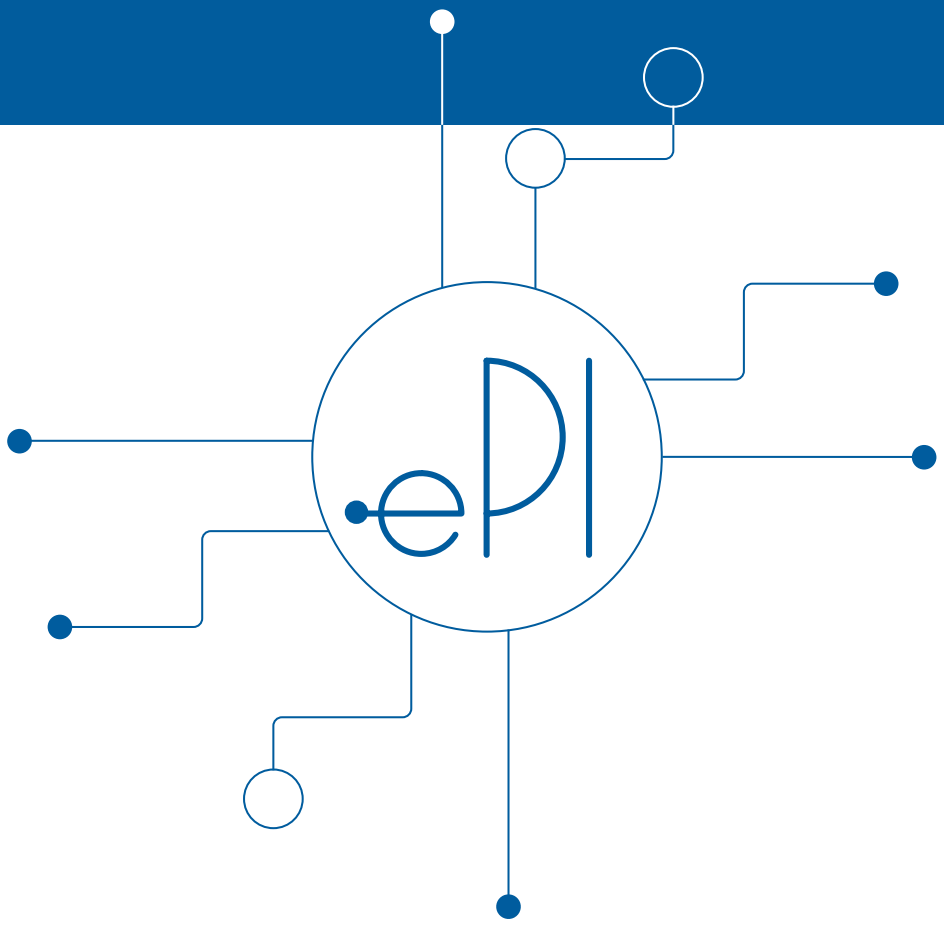

Table of Contents

ePI chronology

This initiative explores the generation of electronic product information (ePI) for European Union (EU) human medicines. A medicine's product information provides regulator-verified, science-based information to patients and healthcare professionals (HCPs).

Provision of this information in an electronic, machine-readable format would be expected to facilitate its dissemination and use. The chronology of events to date is provided below.

March 2017

- The European Commission (EC) publishes its report on current shortcomings in the summary of product characteristics (SmPC) and the package leaflet (PL) and how they could be improved in order to better meet the needs of patients and HCPs.

July 2018

- The Heads of Medicines Agencies (HMA) and representatives from national competent authorities (NCAs), the pharmaceutical industry, and patient and HCP organisations meet in Madrid to gather key stakeholders' views on ePI.

October 2018

- Virtual group discussions are held by representatives from the pharmaceutical industry's Inter-Association Task Force (IATF) and the NCAs of France, Iceland, the Netherlands, Norway and Spain to draft features and use cases for a common standard for ePI.

January 2019

- A report, video and presentations from the workshop are published. The main output of the workshop, the document 'Electronic Product Information for Human Medicines in the EU – Draft Key Principles', is released for a 6 month public consultation.

November 2017

- The European Medicines Agency (EMA) publishes an action plan detailing the actions needed to meet the objectives set out in the EC report. One of the actions is to explore how ePI could facilitate access of EU citizens to the information in the PL and SmPC.
- EMA launches a survey seeking information from stakeholders in order to map ePI initiatives underway in the EU.

September 2018

- EMA's Patients' and Consumers' Working Party (PCWP) and Healthcare Professionals' Working Party (HCPWP) are updated on ongoing work and draft key principles for ePI in the EU are discussed at their September meeting.

November 2018

- The draft key principles for ePI are discussed at a meeting of the Coordination Group for Mutual Recognition and Decentralised Procedures - Human (CMDh).
- EMA-HMA-EC workshop on ePI takes place at EMA's premises in London on 28 November. A diverse group of stakeholders, including patients, HCPs, academics, not-for-profit organisations and pharmaceutical-industry representatives attend the workshop.

Setting the scene — Why ePI?

The workshop was divided into 3 sessions, the first focusing on the needs of stakeholders and the reasons why ePI should be implemented, the second on the current landscape of ePI projects taking place in the EU and the third on discussion of key principles that will guide implementation of an EU ePI.

The workshop opened with a video message from Vytenis Andriukaitis, European Commissioner for Health and Food Safety. In his message, Commissioner Andriukaitis outlined the tangible benefits offered by ePI in the digital health environment, stating that the ultimate goal was to develop a common, global standard for ePI. This was followed by a talk from Kristina Kurgonaitė and Patrizia Tosetti from the EC (DG SANTE) laying out how ePI fits into the wider EU context of digital transformation of healthcare. Digitalisation is a priority in the EU. The 2015 Digital Single Market Strategy and 2018 Communication on Digital Health and Care defined the EU pillars of digital healthcare:

- Secure access by citizens to their health data
- Data sharing for research and better health outcomes
- Empowering citizens with patient-centred care

The importance of empowering patients was also raised by Fakhredin Sayed Tabatabaei from the Dutch NCA (Medicines Evaluation Board, MEB). The current scenario, where PI for medicines is released in an unstructured Portable Data Format (PDF), does not facilitate optimal dissemination to patients, HCPs and other stakeholders. Dr Tabatabaei emphasised the difference between ePI generation and downstream dissemination. He also proposed focusing on creation of an EU common standard for harmonised, structured PI, which could be implemented initially by a pioneer group of Member States followed by full implementation across the EU.

For patients, ePI offers many opportunities for improving the availability, accessibility, portability and presentation of up-to-date PI, according to Kaisa Immonen (European Patients' Forum, EPF). Nevertheless, citizens with limited computer and internet access should have equal access to PI and the content should be available from a trusted, regulator-verified source. In addition to use of digital technologies, Ms Immonen stressed that the content of the PL needs improvement, taking into account knowledge on health literacy and communication of benefits and risks.

Sine Jensen (The European Consumer Organisation, BEUC) expanded on ways to improve the layout and content of patient information. She questioned whether there is sufficient evidence that digital technology improves access to medicines' PI and spoke about the risk of creating health inequalities, whereby some patients may not be able to access electronic information. Ms Jensen emphasised that there should be a focus on the needs of elderly patients. She also underlined the necessity of ensuring ePI is regulator-approved, of high quality, and unbiased.

From the pharmacists' viewpoint, ePI offers opportunities to support patients accessing neutral, objective information at home, complementing the paper PL, and also HCPs accessing information from SmPCs integrated within pharmacy dispensing software. Darragh O'Loughlin (Pharmaceutical Group of the European Union, PGEU) presented real-world examples of ePI, pharmacy dispensing software alerts and relevant linking to risk-minimisation information.

Gesine Bejeuhr (IATF), representing the pharmaceutical industry task force on ePI, said that ePI could lead to better health outcomes by increasing patient knowledge of how to take their medicines and their ability to ask questions and understand their treatment. Current infrastructures, interoperability with other EU telematics projects and technical requirements must be considered to ensure successful implementation of ePI and its sustainability. A multi-stakeholder approach to development of ePI will harness the strengths of all groups.

Highlights

- ePI has the potential to address patient and HCP needs for accessible, relevant information on medicines at the right time during treatment.
- A multi-stakeholder, EU-wide approach and a common EU standard for ePI is envisioned.
- Implementation of ePI should not lead to health inequalities among citizens with limited access to computers or the internet.
- ePI information should be regulator-approved, unbiased and non-promotional.

Current landscape — How does ePI fit in with other initiatives?

EMA has carried out a mapping exercise of current ePI initiatives in the EU and internationally, and the results were presented by Rosa González-Quevedo (EMA) (see page 13). In Spain, the NCA has an established system of ePI. César Hernández García (Spanish Agency for Medicines and Health Products, AEMPS) explained how it began as a pilot involving 3 marketing authorisation holders (MAHs) in 2015 and today ePI is available for 85% of Spain's nationally authorised medicines. An electronic tool is used for interaction on the ePI between the company and AEMPS during the assessment procedure. The output is semi-structured ePI that offers benefits such as easy navigation, personalisation, links to video and images, accessibility and cross referencing. Creation of an easy, common EU standard is the key starting point to implementing such a system at EU level.

In Norway, the NCA collaborates with a third party, the Norwegian Pharmaceutical Compendium (Felleskatalogen), which provides regulator-validated ePI. Vibeke Åbyholm (Norwegian Medicines Agency, NOMA) explained that long, difficult-to-navigate PDF documents are not used by HCPs and that ePI provides the information that patients and HCPs need.

At the Swedish NCA, a multidisciplinary team is currently exploring the use of ePI and is consulting with stakeholders, as described by Kim Sherwood (Swedish Medical Products Agency, MPA). Sweden also has a well-established, third-party provider of ePI called Fass, which collaborates with MPA. MPA is looking into the creation of a tool for using ePI during assessment. In this way, MPA could increase efficiency of regulatory procedures and reduce the risk of errors, as well as improve delivery of information to patients. Its stakeholders have also requested a single source where information on both centrally and nationally authorised medicines can be found.

The work of Fass, one of the oldest providers of electronic medicine information in Sweden and Europe, was described in more detail by Gunilla Englund (Swedish Association of the Pharmaceutical Industry, LIF). Fass is provided by the Swedish Association of the Pharmaceutical Industry, which represents over 200 companies. ePI from Fass is used equally by patients and HCPs; its content has evolved from unstructured online content to today's machine-readable data.

Another well-established third-party provider of ePI is the electronic Medicines Compendium (eMC) in the United Kingdom. John Moreland from eMC explained the process for uploading PI by pharmaceutical companies, converting it to an ePI format, and delivering it to the eMC website, health technology companies and other systems. eMC works with the Royal National Institute of Blind People to provide accessible versions of the PI such as audio, Braille and large-font formats, and is looking into versions for 'smart' devices for the future.

The next speakers in the session described ongoing ePI pilot studies looking at the use of ePI in real-life settings. The ePIL pilot project underway in Belgium and Luxembourg is being carried out by pharmaceutical industry associations in those countries in collaboration with the NCAs and hospital pharmacists. The project, presented by Nathalie Lambot (Belgian association for pharmaceutical industry, AGIM-AVGI), focuses on medicines used only in hospitals. During the two-year project, which has been running since August 2018, paper PLs are not included in the packages of the medicines in the project, but instead made available on trusted websites (as PDF or Hypertext Markup Language [HTML] formats). The aim is to determine whether the electronic PL is equivalent to the paper PL in providing

the information on medicines needed by patients and HCPs in this setting.

Georg Lang (Gebrauchsinformation 4.0 consortium, Germany) spoke about a pilot in Germany, which is being run as a proof-of-concept project by the IATF in collaboration with multiple stakeholders including the German NCAs (Federal Institute for Drugs and Medical Devices, BfArM and Paul Ehrlich Institute, PEI), patient organisations and a German third-party ePI provider, Rote Liste Service GmbH. Approved PI is converted to electronic format (XML) and provided to patients via an app, website or print-out and to pharmacists via pharmacy software. The project has had a successful evaluation by stakeholders and is now being extended to develop additional functionalities.

The final speaker of the session was Giovanna Ferrari (European Federation of Pharmaceutical Industries and Associations, EFPIA) who introduced a research initiative in the field of digitalisation of healthcare being prepared by an industry group. The group is a proposing a public–private partnership to conduct research to understand how the specific application of digital technologies to health and product information can support all patients and citizens in the management of their health and care. The project envisages a digital solution linking health records, personalised treatment guidance and educational materials on medicines and health, including ePI. A proposal is currently being drafted.

Highlights

- ePI is already being provided at national level by NCAs and third-party companies. However, work is being done in separate initiatives and there is a lack of EU-level harmonisation.
- ePI delivers benefits including easier access and navigation, personalisation, and efficiencies in regulatory processes.
- Ongoing pilots will provide more evidence about acceptability of ePI to patient and HCPs.
- Future research is planned that will include placing ePI in the wider digital healthcare environment.

Towards an EU ePI

The third session of the workshop opened with a summary, presented by Elizabeth Scanlan (EMA), of the work of a 'virtual discussion group', which had worked in the months prior to the workshop to develop a list of features and use cases that a future EU common standard for ePI could support (see Annex 1, page 8). The virtual discussion group comprised of NCA representative from the HMA working group on Support for Better Use of Medicines from France, Iceland, the Netherlands, Norway, and Spain, and representatives of the IATF industry task force from AESGP (Association of the European Self-Medication Industry), Medicines for Europe and EFPIA.

The remainder of the session included a description by Juan Garcia Burgos (EMA) of the analysis of the data gathered throughout 2018, which was the basis for drafting the key principles on EU ePI. This analysis involved reviewing the ePI mapping (see page 13) together with feedback gathered in meetings and stakeholder consultation throughout 2018 (see page 2). Key themes emerging from this analysis were the basis for the draft key principles on ePI.

An open discussion took place among the workshop participants, looking at each key principle in turn.

Next steps

The key principles on ePI in the EU, which were updated following discussion during the workshop, have been released for a 6 month public consultation. Stakeholders and members of the public are invited to submit comments via an online form by 31 July 2019. Following the consultation, a final version will be proposed for agreement by EMA, HMA and EC, as well as representatives of patients, consumers and HCPs including PCWP and HCPWP and representatives of the pharmaceutical industry, including IATF.

A roadmap for ePI and next steps will be communicated to EMA stakeholders and via the EMA website.

Annex 1. Outcome of virtual discussion group

This list of features and use cases was compiled by the virtual discussion group (see page 7). They have not been ranked in terms of priority, nor are they intended to be exhaustive. The purpose of compiling them was to kick off the process of documenting requirements, which would be the first step in the implementation of ePI.

Features

Features have been divided into 3 categories:

- those relating to ePI data;
- those relating to ePI user experience;
- potential future functionalities that could be added on to ePI once it is established.

Brief descriptions are provided below.

ePI data

- **Open data that can be reused in other tools**
  ePI data should be freely available for use and reuse so that they become a resource for third parties, such as researchers, developers, organisations and businesses, as well as authorities outside the EU.

- **SPOR (ISO IDMP) terminologies instead of free text where appropriate**
  SPOR (substance, product, organisation and referential) refers to the EMA programme to implement ISO IDMP (International Organization for Standardization — Identification of Medicinal Products) standards for description of medicines. Standard terminologies from SPOR have started to be required for regulatory submissions, and these requirements will expand to other areas in the future. It is therefore logical to also include those terminologies in ePI where relevant.

- **ePI throughout assessment**
  Some NCAs would like to implement a 'digital first' approach where ePI is used throughout the regulatory assessment, thus avoiding conversion between formats. This possibility should be catered for in the design of an ePI standard.

- **Interoperable with e-health systems**
  To deliver benefits to patients and HCPs, ePI should be designed to work with other health systems. There are numerous electronic health systems where interoperability with ePI could be beneficial including e-prescribing and dispensing, electronic health records, cross-border healthcare, clinical decision support systems and computerised physician order entry systems.

- **Linked from medicine package**
  ePI should be accessible directly from the medicine package, for example by scanning a barcode on the package.

- **Batch-specific ePI**
  Some changes to a medicine, such as a change to an excipient, could mean that a different ePI would be valid for different batches of a medicine. For example, older batches of a medicine that are still 'on the shelf' could have a different ePI to newer batches being released from the manufacturer. Therefore, it should be possible to link each medicine package in a particular batch to the correct, batch-specific ePI.

- **History of PI updates**
  ePI should support versioning, meaning that it should be possible to access historical versions of the ePI and note the changes that have taken place over time.

- **Data security**
  ePI content should be secure and protected against unauthorised changes.

- **Data privacy**
  Any use of ePI involving collection of personal data should comply with data protection legislation to ensure that patient privacy is upheld and that this is done legally.

User experience

- **Multimedia integration**
  ePI should be able to incorporate multimedia content, such as videos (e.g. on how to administer a medicine) or photos (e.g. images of tablets or capsules).

- **Accessibility**
  ePI should be accessible, meaning that it should be provided in a way that people with limited ability to view or use the content can still access the information. These include, for example, users who have difficulty reading the information they need due to visual or other impairments or those who cannot use a paper format.

- **Layering and relevant links**
  ePI should include links to additional relevant information, such as educational material, and allow users to access more technical information (e.g. scientific assessment reports) if they wish.

- **Multilingual content**
  ePI should support PI in the official EU languages so that users from the EU can access the ePI in their chosen language, if an authorised PI is available in that language.

- **User-friendly navigation and search**
  ePI should support use via interfaces that allow easy search and navigation of all EU medicines.

- **Personalisation**
  ePI should enable interfaces with functionalities such as setting up of alerts to inform the user about updates or recalls and saving 'my medicines' or previous searches.

Potential future functionalities

- **Regulatory efficiency**
  ePI could help to increase the efficiency of regulatory processes, for example by simplifying user testing of PLs.

- **Dosing apps and alerts**
  ePI could be used in apps that help patients manage their own treatment and ensure they follow their dosage regimen correctly.

- **Reporting of adverse effects and real-world data collection**
  ePI could facilitate collection of real-world data, including direct reporting of side effects by patients and HCPs.

Use cases

Use cases describe scenarios where users interact with ePI. The use cases given as examples below are grouped by the type of user or 'actor'. However, most use cases apply to more than one user group.

Actor	Use case
Patient 	**Reminder of how to administer medicine** • **Step 1.** Patient has ePI for an asthma medicine in her phone app • **Step 2.** She wants a reminder of how to take the medicine • **Step 3.** She goes to 'How to take your medicine' where she can view and download a video showing how to administer the medicine
	Safety alert • **Step 1.** Patient has ePI for a medicine in her phone app • **Step 2.** She receives an alert when there is new safety information in ePI
	Layered information • **Step 1.** Patient goes to ePI of a medicine she is prescribed • **Step 2.** She can link to educational material, lay overviews and more technical material
	Accessing PI abroad • **Step 1.** Patient is prescribed a medicine while travelling/working abroad • **Step 2.** She scans the package barcode with her phone to access ePI • **Step 3.** As the medicine is authorised in several countries, ePI is available in several languages. She is offered the language options for ePI and chooses her preferred language

Actor	Use case
Patient and/or HCP 	**Planning pregnancy** • **Step 1.** Patient is planning pregnancy • **Step 2.** Patient/HCP searches ePI of all patient medicines for recommendations in pregnancy (4.6 Fertility, pregnancy and lactation) • **Step 3.** Patient/HCP plans treatment during pregnancy taking account of ePI **Seeking lactose free medicine** • **Step 1.** Patient is lactose intolerant • **Step 2.** Patient/HCP searches ePI of potential medicines that contain lactose • **Step 3.** Patient/HCP chooses from non-lactose containing treatment options **Seeking over-the-counter medicine without a specific side effect** • **Step 1.** Patient seeks over-the-counter hay fever medicine that does not cause drowsiness • **Step 2.** Patient/HCP searches ePI of all hay fever medicines that do not list side effect drowsiness • **Step 3.** Patient chooses treatment that does not cause unwanted side effect **Action after forgetting to take medicine** • **Step 1.** Patient taking multiple medicines and managing daily usage with a pill box forgets to take their medicines in the morning • **Step 2.** Patient/carer searches ePI of the patient's medicines selecting PL section 'If you forget to take…' Patient can also identify each medicine tablet using image in the ePI • **Step 3.** Patient follows advice in PL for each medicine

Actor	Use case
HCP 	**Informing patient of change to PI** • **Step 1.** HCP checks renewal of prescription for medicine for patient with chronic condition • **Step 2.** Prescribing system highlights new information in ePI • **Step 3.** HCP renews prescription and makes contact with patient to inform of change to ePI

Actor	Use case
Regulator and MAH 	**Changing MAH address** • **Step 1.** Address of MAH changes • **Step 2.** MAH informs regulator and changes ePI data; change is automatically implemented in all affected PI annexes **New warning for originator medicine** • **Step 1.** MAH of originator medicine submits variation to 4.4 Special warnings and precautions for use • **Step 2.** MAH changes ePI data; change is automatically implemented/flagged for updating in all affected PI annexes of originator and generics **New side effect for active substance** • **Step 1.** Article 31 referral introduces an "Undesirable effect" for all medicines containing same active substance • **Step 2.** MAHs change ePI data; change is automatically implemented/flagged for updating in all affected PI annexes of medicines with that active substance **Medicine shortage** • **Step 1.** MAH informs regulator about shortage of a medicine • **Step 2.** Regulator searches ePI of all EU medicines for potential alternatives to prepare a shortage management plan and possible importation from another Member State • **Step 3.** Patient is informed of shortage and measures to ensure supply

Annex 2. ePI mapping

To obtain an overview of ongoing EU initiatives on ePI, EMA carried out a mapping exercise using the results of a survey sent to stakeholders. Results of the mapping exercise informed the organisation of the November 2018 workshop and the development of the key principles on ePI.

Methodology

In November 2017, EMA informed its stakeholders in the EU that it was seeking information on ePI-related projects that they were involved in or aware of. An online survey, which ran until February 2018, was used to gather this information. Users could also send information on these projects to EMA by e-mail.

EMA then performed a quantitative textual analysis of the responses that described ongoing ePI projects. This was achieved by creating short, standardised summaries of each project, and categorising them according to the following criteria:

- stakeholder group running the project;
- content covered (PL/SmPC/Summaries);
- target audience for the ePI initiative;
- type of electronic platform;
- geographical location;
- sector (public or private);
- project phase (planning/ongoing/pilot/established);
- inclusion of accessibility aspects;
- type of standard used;
- collaboration (yes/no);
- multilingualism (yes/no).

Responses describing projects that aimed to improve the content of the PI were excluded from this analysis. Future work planned in the improvement of the content of the PI is foreseen in the EMA action plan.

To gather information from other parts of the world, EMA also sent surveys to the medicines regulatory authorities in countries outside Europe, including Australia, Canada, Japan, Switzerland, and the United States, as well as to International Conference on Harmonisation (ICH) members and observers.

Results from EU survey

There were 81 responses to the survey. Of these, 38 described ePI-related projects at various stages of development, with 14 being ‘established’.

Twenty-three of the projects targeted patients/consumers and HCPs, and involved both the SmPC and PL. The 12 projects targeting patients/consumers focused on the PL.

Most projects used websites to provide ePI, with mobile formats and apps used in 12 projects. Videos were planned for 5 of the projects and 5 projects aimed to use quick response (QR) codes.

Accessibility of ePI for people with impairments or low health literacy was a feature of 14 projects; formats included video, audio, visual images, integrated dictionaries of medical terms, font-size adjustment, Braille and screen-readers.

Electronic standards were not described in detail by any of the respondents: XML was the only mark-up language mentioned.

Although all established projects were located within the EU, none of these projects involved PI in more than one language.

Two collaborative pilot studies involving multiple stakeholder types were described: the Belgium/Luxembourg ePIL project and the Gebrauchsinformation 4.0 project in Germany (see also pages 5 and 6).

Responses from patient/consumer and HCP organisations

No organisations representing patients/consumers that responded to the survey were running ePI projects, but they did provide comments and opinions on the development and use of ePI.

Among organisations representing HCPs, the General Pharmaceutical Council of Spain described its 'Medicamento Accessible PLUS' app that provides ePI for patients who have difficulty accessing paper PLs. The app provides electronic and audio PLs and was developed in collaboration with the ONCE foundation for blind and visually impaired people and with the Vodafone Spain Foundation. Pharmacist organisations are highly engaged with digital solutions: PGEU, representing EU pharmacists, submitted a statement on eHealth Solutions in European community pharmacies, with recommendations for consideration in development of eHealth solutions; and the Royal Dutch Pharmacists Association (KNMP) described its online resources for pharmacists and patients, including specific groups such as those with low literacy levels and children.

Responses from NCAs

Nineteen NCAs responded to the survey: Belgium, Bulgaria, Croatia, Denmark, Estonia, France, Germany, Hungary, Iceland, Ireland, Italy, Latvia, Malta, the Netherlands, Norway, Romania, Spain, Sweden and the United Kingdom (UK).

Spain is the only NCA that has implemented ePI for its nationally authorised medicines. ePI is used throughout the assessment process and is easily navigable for patients and HCPs on the CIMA website (see page 5). In France, the PI for nationally authorised medicines is presented in HTML format on the ANSM website, although this is not based on a structured ePI template.

In general, NCAs acknowledge the opportunities afforded by digital formats. Projects on ePI are already underway in Belgium, Germany, the Netherlands, Norway and Sweden.

Well-established third-party companies or pharmaceutical industry associations provide ePI, often in collaboration with NCAs, in countries including Denmark (Indlægssedler), Finland (Lääkeinfo), Germany (Rote Liste), Ireland (Irish Pharmaceutical Healthcare Association), Norway (Felleskatalogen), Sweden (Fass) and the UK (eMC).

Responses from the pharmaceutical industry

A large proportion of the pharmaceutical industry is represented by the IATF, which is a joint task force of the pharmaceutical industry associations Medicines for Europe, EFPIA and AESGP. IATF is involved in the pilot project Gebrauchsinformation 4.0 (page 6). A second pilot project being run by pharmaceutical industry associations in Belgium and Luxembourg is also underway (page 5).

Responses from other stakeholders

Survey respondents also included academic researchers involved in projects on PI content, a submission from the medical press (Prescrire), consultants and companies developing e-health solutions.

Results from international mapping

Survey replies received from 14 authorities and analysis of regulators' websites revealed that:

- most countries currently provide PI in PDF format, such as Japan, and acknowledge the need for ePI. Some, such as Canada, are planning transition to electronic formats;
- Switzerland provides PI in HTML format on the Swissmedic website in German, French and Italian;
- the United States implemented ePI in 2005 and use an electronic standard called Structured Product Labeling (SPL). ePI can be accessed on the DailyMed website;
- the Bill and Melinda Gates Foundation is considering a future project to explore the use of electronic PL instead of paper package leaflets in low-income countries.

European Medicines Agency

30 Churchill Place
Canary Wharf
London E14 5EU
United Kingdom

Telephone +44 (0)20 3660 6000
Facsimile +44 (0)20 3660 5555
Send a question www.ema.europa.eu/contact

www.ema.europa.eu

Electronic product information for medicines in the EU
EMA/901549/2018