PRODUCT STEWARDSHIP PROGRAMME FOR LIQUID LAUNDRY DETERGENT CAPSULES Status Update until March 2020

29/06/2020

Executive Summary

Since the introduction of safety measures, the frequency of accidental exposures involving Liquid Laundry Detergent Capsules (LLDC) has decreased substantially. This assessment is based on Poison Control Centre data on reported exposures in five EU countries, relative to the product's market presence. The downward trend has continued until 2016/17, and was re-established over 2019, quite prominently in several countries. This renewed dynamic coincides with additional voluntary measures: improved child-impeding closures, an advertising code of conduct, a re-vamp of the "Keep caps from kids" education campaign). Subsequentially, and as part of the ongoing commitment to LLDC safety measures, the on-pack "yellow patch" warning has recently been revised with the aim of improving on pack communication to consumers.

Aiming to reduce accidental exposures to Liquid Laundry Detergent Capsules (LLDC), in particular involving small children, the A.I.S.E. Product Stewardship Programme (PSP) for these products was launched end 2012. With this voluntary industry initiative, improved safety was achieved through product packaging and labelling requirements, as well as the promotion of safe use and storage. Further, child-safety messaging was included on all LLDC brand communication and advertising as of 2014. In parallel there was the industry online media campaign "Keep Caps From Kids" (in 2014, and re-vamped in 2017). Next to additional elements, the PSP measures were largely re-applied in the CLP specific regulatory requirements for liquid laundry detergents in soluble film, made mandatory as of mid-2015. In June 2017, the PSP was enhanced with the voluntary inclusion of quantitative testing of child-impeding closures, as well as an advertising code of conduct. Recently, additional improvements of the PSP artwork aspects were introduced, with a photographical image to convey the message "keep out of reach of children". This will be more effective at attracting consumers' attention and will have a stronger emotional effect, which aims to lead to a stronger behavioural impact. With the consolidation of the PSP commitments in a single requirements document in 2020, the above measures are now an integral part of the PSP, applicable to all signatories.

Since the inception of the PSP in 2012, the reduction of the incident frequency (expressed as number of reported exposures per million capsules sold on the market) has been consistent and substantial. Whereas in the period 2017-18 no notable further decrease could be observed, the downward trend has now been re-established, and is prominent in several countries.

	Czech Republic	Ireland	Italy	The Netherlands	Spain
Overall reduction: past 12 months versus baseline year	77.2% (s)	47.8% (s)	68.4% (s)	68.1% (s)	49.6% (s)(*)
Recent reduction: April 2019-March 2020 versus April 2018-March 2019	4.2%	8.5%	14.1% (ms)	25.0% (s)	29.8% (s)

(s) statistically significant with α=0.05 (ms) marginally significant (*) versus the year 2014

Monitoring of Poison Control Centre data will be continued to assess whether the downward momentum is maintained.

For more information on the A.I.S.E. Product Stewardship Programmes for Liquid Detergent Capsules and for previous progress reports, please visit www.aise.eu in the section "Our Activities" → "Product Stewardship Programmes" → "Liquid Detergent Capsules".

Background - A.I.S.E. Product Stewardship Programme (PSP)

The A.I.S.E. Product Stewardship Programme for Liquid Laundry Detergent Capsules was first launched at the end of 2012. This was extended to cover all liquid containing detergent capsules in 2015. The PSP entails commitments regarding product/packaging, information and communication (both on-pack and consumer communication), as well as engagement with Poison Control Centres (PCCs).

Today, essentially all products on the shelf comply with the PSP 2012 requirements. This is also due to the CLP 'Soluble Packaging' Regulation (EU) No.1297/2014 that requires similar as well as additional measures for the product film, outer packaging and on-pack labelling, for all LLDC products placed on the market as of June 2015 (with official phase-out of non-compliant products by end 2015).

In June 2017, a voluntary enhancement of the PSP was opened by A.I.S.E., and was signed by 6 companies that jointly represent the vast majority (80-90%) of the Liquid Laundry Detergent Capsules market across the EU (Euromonitor data). This PSP-2017 introduces the requirement for superior child impeding properties of the packaging, which has to be demonstrated by means of quantitative testing according to a tailor-made A.I.S.E. protocol. The signatory companies have by now all moved to packaging that meets these criteria, with full phase-out of old packaging by early 2020. The PSP-2017 also introduces an advertising code of conduct, committing to not advertising hazardous LLDC in any media channels that are primarily targeted to children below 5 years old, and to not promoting hazardous LLDC targeted to children of this age group. This was implemented for every new advertising / promotion contract established as of January 2018.

A revision of the PSP artwork commitment was introduced mid-2019, based on consumer research (cf. Annex). A consumer-preferred and more engaging photographical image replaces the A.I.S.E. safe use icon to convey the message 'keep out of reach of children'. The "do not ingest" icon has also been improved. In addition, product-specific information how to open and re-close the pack can now be used instead of the generic "close the pack" icons. The revised "yellow patches" started appearing in the market in 2020 (with a complete transition latest by end 2020).

In March 2020, a consolidated version of the PSP was rolled out, applicable to all 7 PSP signatory companies. This implies that previously optional aspects (i.e. the superior child impeding closures and the advertising code of conduct) have now become an integral part of the PSP commitment for all.

Communication efforts have been significantly reinforced as of April 2014, with child-safety messaging included on all LLDC brand communication and advertising. In parallel to the PSP, in 2014 the "Keeps Caps From Kids" (*www.keepcapsfromkids.eu*) educational campaign was launched, and an entirely reworked web site was launched mid-September 2017. At the national level, pilot consumer education campaigns in collaboration with paediatricians have been implemented in the course of 2018 in Germany and in France, and are ongoing.

Incident Statistics - Reported Exposures to PCCs

Methodology

Exposure statistics.

The numbers of exposures reported to PCCs, on a monthly basis, are available until March 2020 for the Czech Republic (CZ), Ireland (IE), Italy-Milan (IT), The Netherlands (NL) and Spain (ES). These data were kindly provided by respectively the Prague PCC, the Dublin PCC, the Milan Niguarda PCC, the Utrecht PCC (NVIC), and the Madrid PCC.

These statistics represent the number of accidental exposures that have led to PCC enquiries - and are further referred to as 'reported exposures'.

Please note that reported exposure statistics are not always comparable between different countries:

- In some countries (e.g. the Netherlands), only medical professionals have access to the PCC. In most other countries the general public can also enquire directly, which may lead to a higher number of calls.
- Local cultural aspects may determine the proportion of accidental exposures for which the PCC is contacted. This may be especially relevant for cases with no or minor symptoms.
- Cultural aspects may also determine the number of enquiries not related to a clinical case (e.g. enquiries without an actual exposure). Note that such enquiries are in principle excluded from the statistics.
- Finally, not all PCCs cover the entire territory of a country (e.g. the Milan PCC covers approximately 70% of Italy). This impacts the normalisation of exposure numbers per million units sold across the country (see below), and makes this normalised rate not directly comparable to other countries.

Market volume data.

Monthly estimates of the total liquid laundry detergent capsules market size for each country are acquired from third party data suppliers by several detergent companies. These are not the individual sales volumes for single producers or brands, but are estimates of the total market (covering all producers, all brands) based on actual sales data in combination with coverage extrapolation factors. For all countries within scope, market size estimates were available from two or more detergent companies. For use in this report these estimated market size values were averaged between the different data sources.

Note that different companies use different extrapolation methods and different data providers to develop these market estimates. Consequently, the estimates may vary between companies. For confidentiality reasons, it cannot be mentioned in this report which companies have provided data, nor how many companies have provided data for each specific country.

Market size normalisation.

To assess the trend and the effectiveness of risk reduction measures, a normalisation of the incident count to the market size is essential. The normalisation addresses the proportion of LLDCs on the market that have been involved in an accidental exposure.

For each individual month, as well as for the entire 12-month periods being assessed (i.e. baseline year, past 12 months, past 12-24 months, and past full calendar years), the number of reported exposures is normalised to the market size. This results in the number of reported exposures per million units sold - both on a monthly and on an annual (i.e.,12-month period)[1] basis.

These data allow comparing the most recent 12-month period with the pre-PSP baseline. This baseline is the 12-month period preceding the on-shelf introduction of the PSP measures across the EU in mid-2013 (or mid-2012 in Italy). In addition, the most recent period can also be compared to the immediately preceding 12-month period to assess the extent to which the trend is ongoing.

[1] *This is a time-independent measure, i.e. irrespective of whether it is calculated on a monthly, quarterly, or annual basis. This is because the time parameter is removed when [the number of incidents per month] is divided by [the number of capsules sold per month] (as 'per month' appears both in the numerator and the denominator). 'Monthly basis' only means that each calculation refers to one specific month. To derive the annual value, the number of reported exposures across one year is divided by the number of capsules sold over that year.*

Assessment.

1) Versus pre-PSP baseline:

   - In principle, the year 2012 is used as the baseline - because PSP measures were first introduced across the EU market mid-2013.
   - For Italy, the baseline is calendar year 2011 - because in Italy very similar measures were already introduced as of mid-2012
   - For the Netherlands, the baseline was taken as April 2012 - March 2013 - because early 2012 the product category had only recently been launched and a meaningful number of incidents was only reported as of April 2012.
   - For Spain, no assessment versus the pre-PSP situation was possible, due to lack of market size estimates for this period.
   - In all cases, exactly one full year is reflected in both the pre-PSP baseline and the assessed periods. This is to rule out any potential bias due to seasonality effects, should those be occurring.

2) Ongoing trend post-PSP introduction:

   The past 12-month period is compared to the immediately preceding 12-month period (i.e. versus 12 to 24 months ago). This approach allows assessing whether an ongoing reduction trend can be observed.

Graphical Representation.

Time series charts are plotted for each of the five countries. The number of reported exposures and the market size estimate are presented on a quarterly basis to illustrate the dynamics over time while not emphasising short term variability (month to month). The calculated exposure frequencies per million capsules are presented on an annual basis, i.e. per calendar year and also for the most recent 12-month period. As such, seasonality effects are excluded from the exposure frequency.

Statistical significance.

The statistical significance of the observed differences was assessed by means of the Generalized Linear Model (Poisson distribution) approach, using aggregated data across the 12-month periods. A threshold $\alpha = 0.05$ was used to determine significance. This method was found to provide the most robust statistical assessment for this type of data. The calculations were conducted by means of the software "*R*" version 3.2.2.

Aggregation across countries.

Care must be taken when interpreting aggregated PCC data across countries. As mentioned above, data are often not comparable between different countries: e.g. due to different access to the PCC, cultural aspects, and geographical coverage. Consequently, no aggregation across countries is included in this report.

Czech Republic: -77.2 % versus Baseline

Exposures:

After having reached a maximum in April 2014, with 38 cases per month, the number of reported exposures has decreased to on average 13 per month in 2016. Since then there has been a slight increase up to an average of 17.8 per month over the past 12 months (until March 2020). This is the same the monthly average for the baseline year 2012.

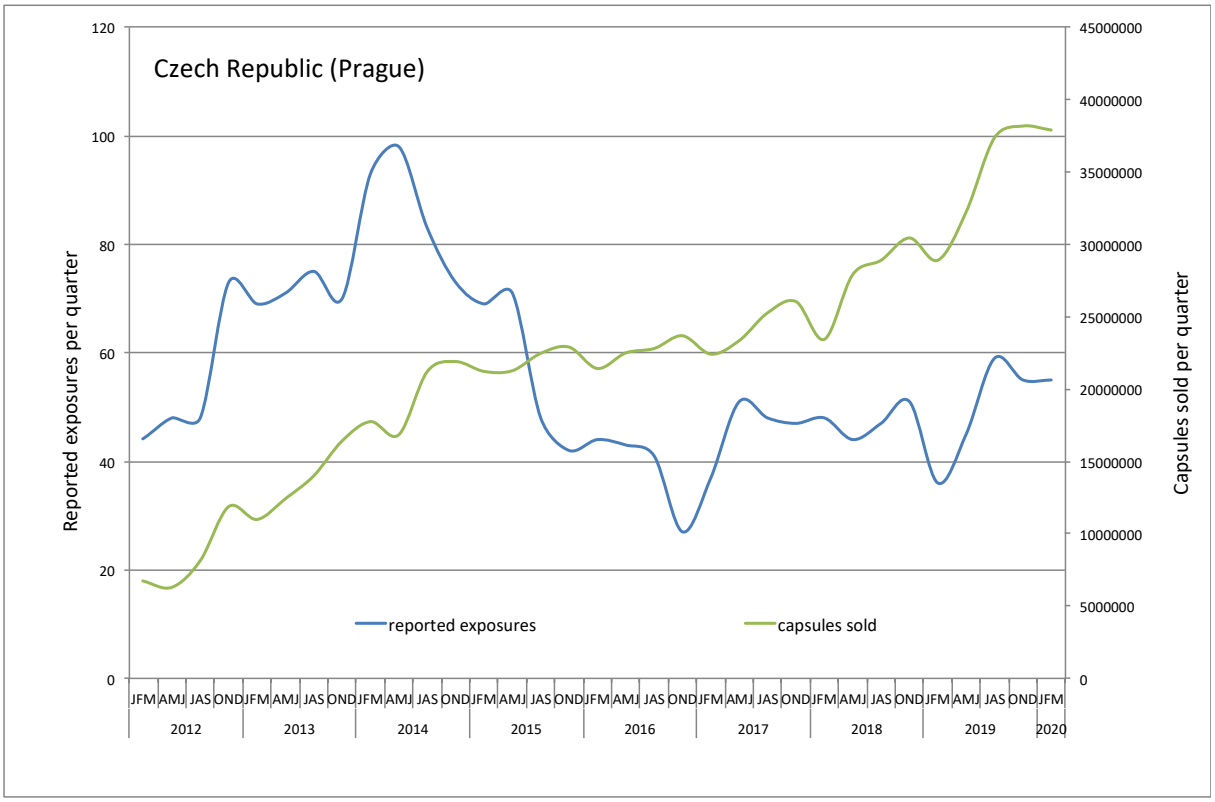
Market:

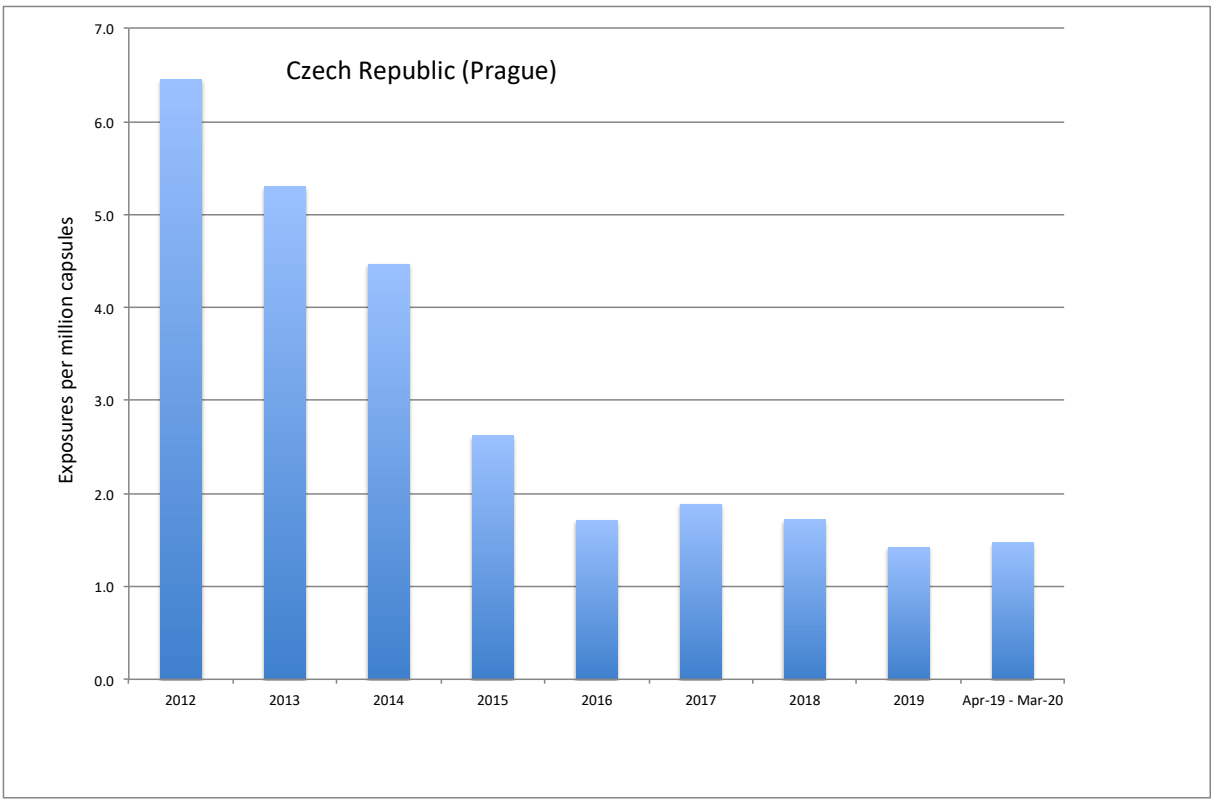
From 2012 to 2014, the market has grown substantially from less than 2.5 million units per month in early 2012, reaching a maximum to date of over 14 million in September 2019. Since then, the market has been stable at about 12.7 million capsules per month on average.

Assessment:

There were ***1.47 reported exposures per million capsules*** over the past 12 months. This is a very relevant decrease by 77.2% (statistically significant, $p<0.001$) compared to the baseline year 2012, which had 6.45 cases per million capsules. Most of the reduction happened between 2012 and 2016 (with 1.71 exposures per million capsules). In 2017 and 2018 the incident frequency did not decrease further, but over 2019 a downward trend was again observed. The past 12 months, compared to the preceding 12-month period (until March 2019), there was a decrease by 4.2% (not statistically significant, $p=0.68$). Note that for calendar year 2019, the incident frequency was 16.9% lower than for 2018 (marginally significant, $p=0.070$)

These observations show that since the start of the data tracking in 2012, the decrease has been consistently strong until the end of 2016. Following fluctuations around 2017-18, a further (more limited) reduction has re-appeared.


Czech Republic (Prague)
Reported exposures per quarter
Capsules sold per quarter
reported exposures
capsules sold
120
100
80
60
40
20
0
45000000
40000000
35000000
30000000
25000000
20000000
15000000
10000000
5000000
0
JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM
2012 2013 2014 2015 2016 2017 2018 2019 2020


Czech Republic (Prague)
Exposures per million capsules
7.0
6.0
5.0
4.0
3.0
2.0
1.0
0.0
2012
2013
2014
2015
2016
2017
2018
2019
Apr-19 - Mar-20

Ireland: -47.8% versus Baseline

Exposures:

On average, the number of reported exposures over the past 12-month period (until March 2020) was 26.3 per month - this is 43% higher than the baseline year 2012, in which on average 18.3 cases had been reported per month. It is also 7% more than the average of 23 reported exposures per month observed for the preceding 12-month period (until March 2019).

Market:

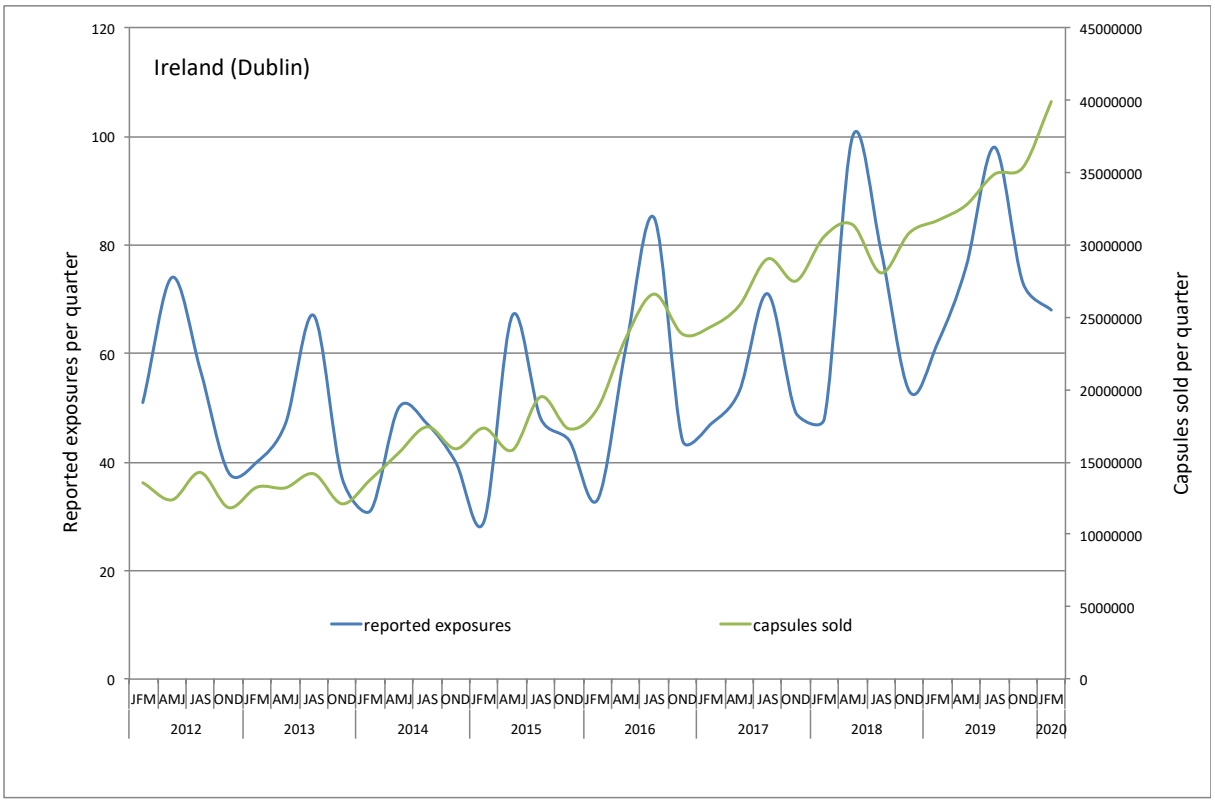
The capsules market in Ireland has continued to grow over the past several years, with an average of 11.9 million capsules per month across the past 12-month period.

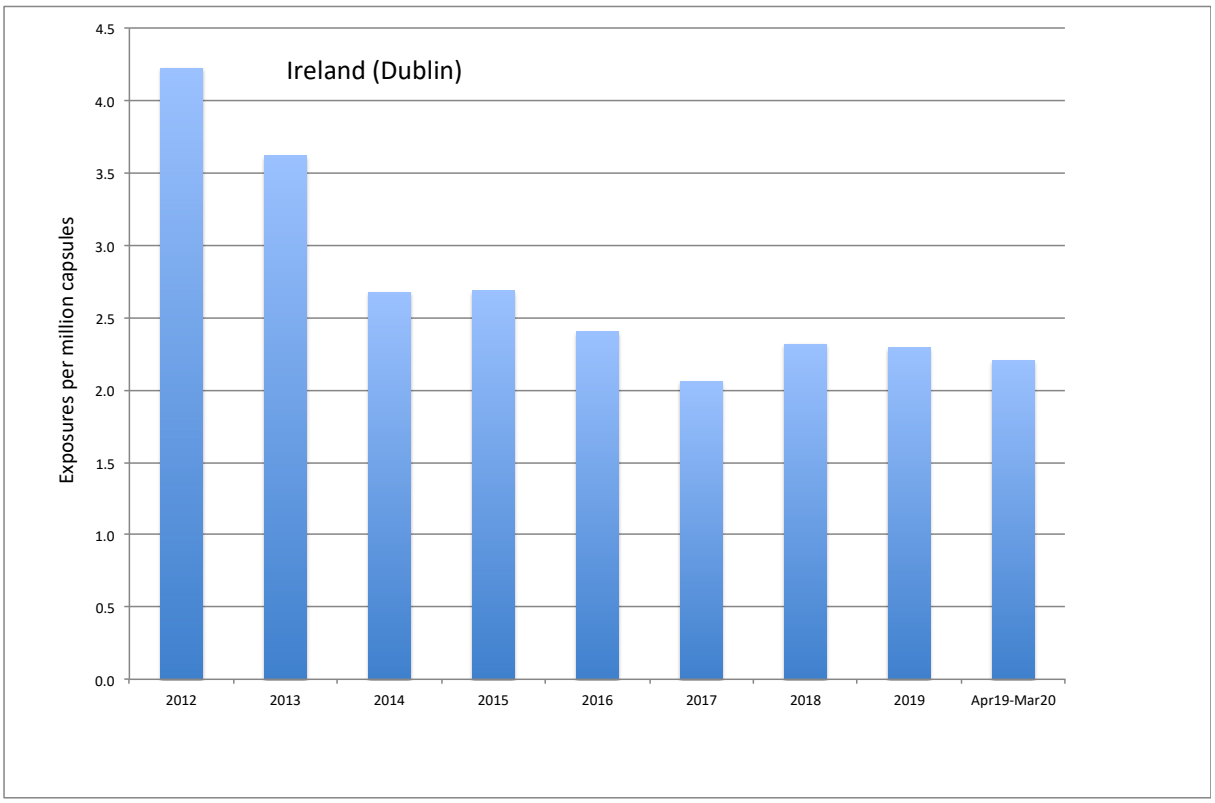
Earlier, the market size had remained largely stable over 2012 and 2013 (on average 4.4 million units per month). The upward trend started in 2014, and with some fluctuations, the growth has continued steadily through 2020, with sales exceeding 15 million capsules in March.

Assessment:

Over the past 12 months, there were on average ***2.2 accidental exposures per million capsules*** on the market. Despite the higher absolute incident count compared to the baseline year 2012, relative to market presence this does represent a notable decrease of 47.8% (statistically significant, $p<0.001$) - as the 2012 incident frequency was 4.2 cases per million capsules. Compared to the preceding 12-month period (until March 2019) a decrease by 8.5% was observed (not statistically significant, $p=0.27$), but still the incident frequency was somewhat higher than the minimum of 2.06 that had been reached in 2017.

These observations show that since the start of the data tracking in 2012, there has been a decrease until 2016/17. However, since then, there has been no further meaningful reduction. Nevertheless, a downward trend appears to have been re-established over the past year.


Ireland (Dublin)
Reported exposures per quarter
Capsules sold per quarter
reported exposures
capsules sold
120
100
80
60
40
20
0
45000000
40000000
35000000
30000000
25000000
20000000
15000000
10000000
5000000
0
JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM
2012
2013
2014
2015
2016
2017
2018
2019
2020


Ireland (Dublin)
Exposures per million capsules
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2012
2013
2014
2015
2016
2017
2018
2019
Apr19-Mar20

Italy: -68.4% versus Baseline

To note: In Italy, initial risk reduction measures were already implemented as of mid-2012, one year prior to the PSP. Because of this, a longer data series (starting mid-2010) is shown than for the other countries. Furthermore, as a pre-PSP baseline, the year 2011 is used.

Background: The Milan PCC started reporting an increasing number of LLDC-related poisonings shortly after their launch on the open market, in August 2010. The PCC immediately alerted the industry about the increasing number of symptomatic cases that originated directly from the hospital's Emergency Room. Since September 2010, a series of working meetings with industry representatives was initiated with the purpose of finding ways to reduce this emerging risk. During these sessions, among the various considered response strategies, the use of opaque packaging was one of the first, and most widely supported. This measure was first implemented mid-2012 and made mandatory as of early 2013.

Exposures:

Overall, a steady decrease of the number of reported exposures can be seen from the mid-2012 peak (of 70 cases per month) until the end of 2016 (with on average under 16 incidents per month). Since then, the number of reported exposures has gradually increased again, reaching an average of 29 per month over the past 12-month period (April 2019 to March 2020).

Market:

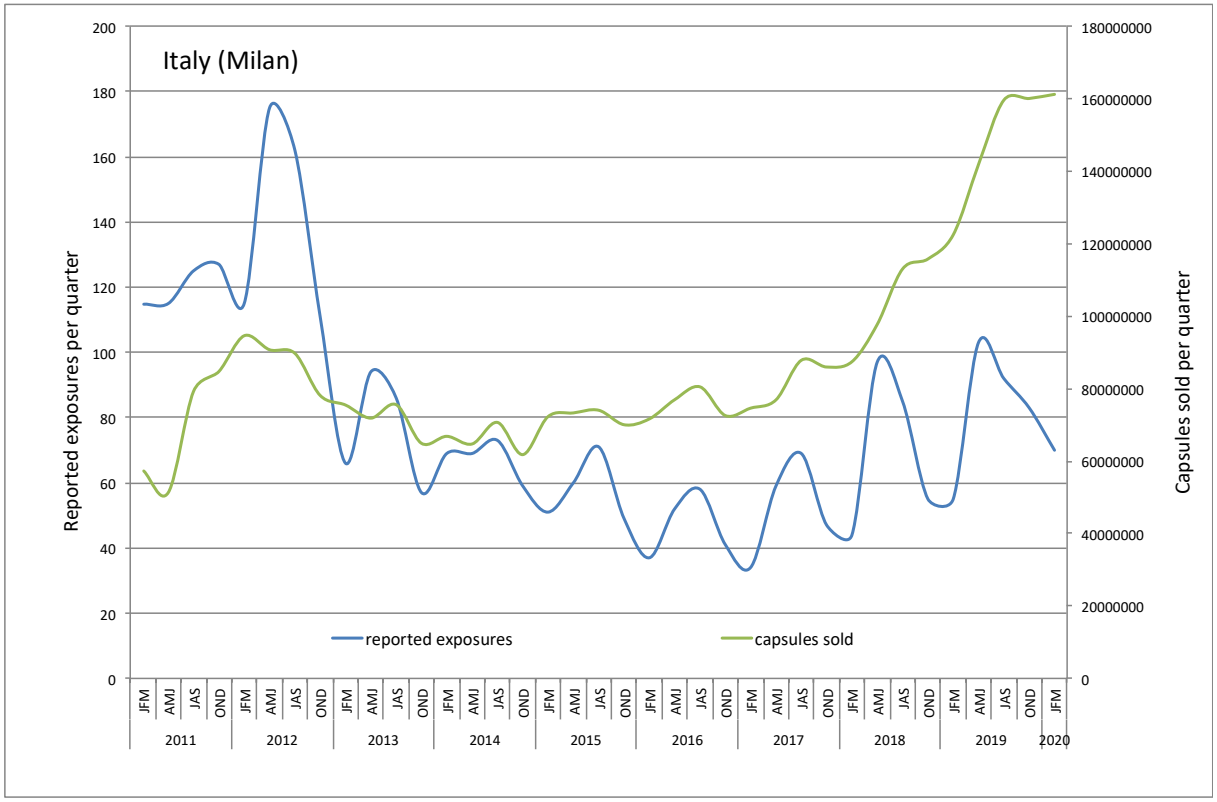
Since mid-2017, the liquid laundry detergent capsules sales volume in Italy has shown a prominent growth. The average volume was 52 million unit doses per month over the past 12-month period until March 2020, which is nearly twice the volume of 2017.

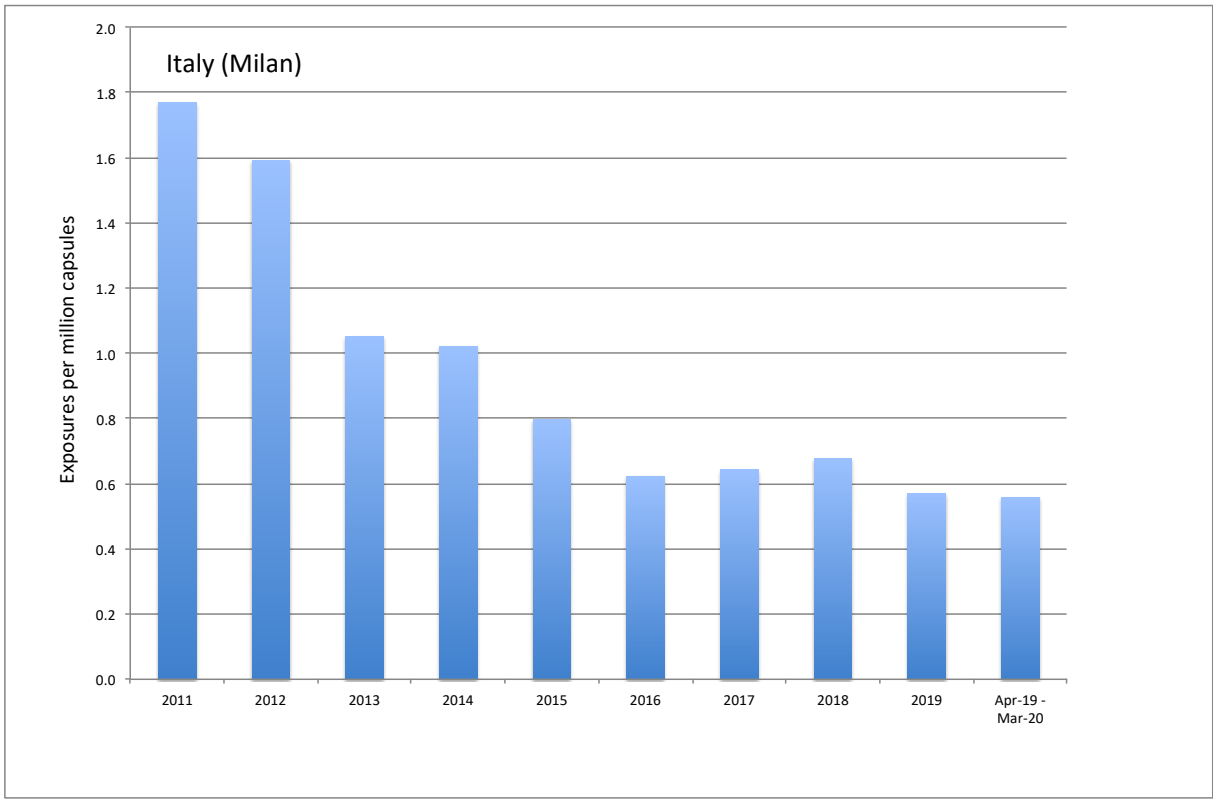
Earlier, from mid-2011 to mid-2012, a market volume plateau (of about 30 million units per month) had been reached, which was followed by a decrease until the end of 2013 and modest growth over 2015 and 2016.

Assessment:

During the past 12-month period, ***0.56 accidental exposures*** have been reported to the Niguarda PCC per million liquid laundry detergent capsules on the Italian market. This is a 68.4% reduction (statistically significant, $p<0.001$) compared to the baseline year 2011, before the introduction of the first measures (with 1.77 exposures per million capsules). Compared to the preceding 12-month period (until March 2019), there was a 14.1% decrease (marginally statistically significant, $p=0.056$).

These data show that a decreasing trend has been ongoing steadily and consistently since the initial introduction of risk mitigation measures until 2016, and after plateauing in 2017/18, this trend appears to be have been re-established over 2019.


Italy (Milan)
Reported exposures per quarter
Capsules sold per quarter
reported exposures
capsules sold
0
20
40
60
80
100
120
140
160
180
200
0
20000000
40000000
60000000
80000000
100000000
120000000
140000000
160000000
180000000
JFM AMJ JAS OND
2011
2012
2013
2014
2015
2016
2017
2018
2019
2020


Italy (Milan)
Exposures per million capsules
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2.0
2011
2012
2013
2014
2015
2016
2017
2018
2019
Apr-19 - Mar-20

The Netherlands: -68.1% versus Baseline

To note: in The Netherlands, LLDCs were not significantly present on the market until early 2012. Meaningful numbers of exposures were only reported as of April 2012. To take this into account, as a baseline period, April 2012-March 2013 was taken instead of January 2012-December 2012.

Exposures:

Over the past 12 months, on average 28.8 exposures were reported per month in the Netherlands. This is the same as observed for the preceding 12-month period (29.1 per month). Prior to the PSP introduction the absolute number of reported exposures was lower (on average 13.4 cases per month) - in line with the much lower market presence at that time.

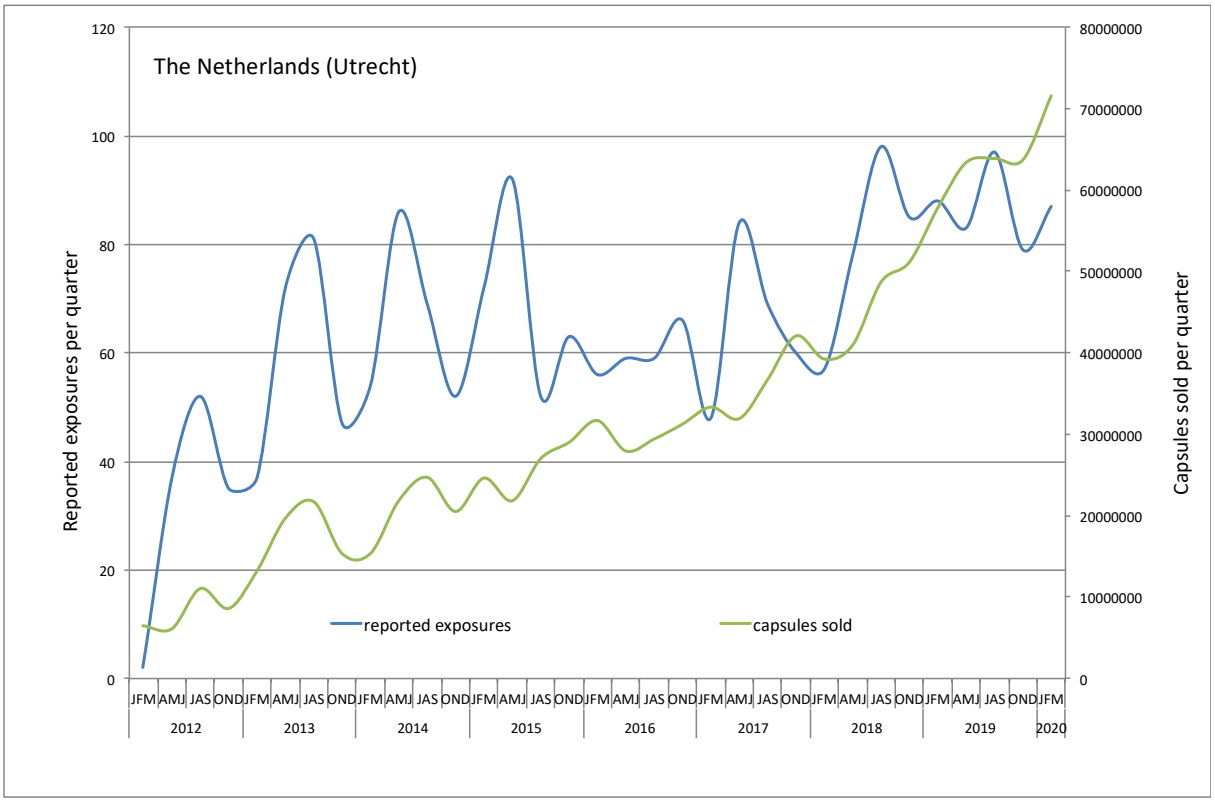
Market:

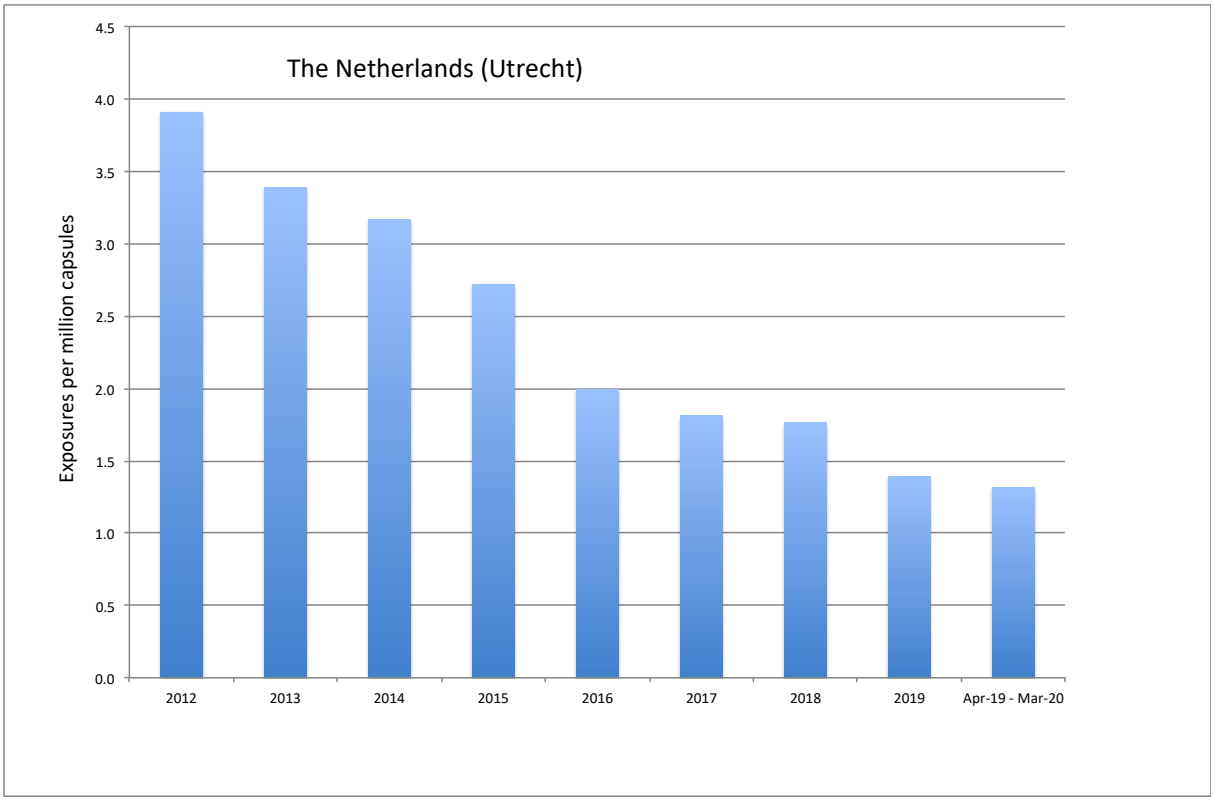
Since the market introduction, the LLDC market in the Netherlands has continued to grow steadily and substantially, from an average of under 3 million units sold per month in 2012 to 20.7 million per month on average in 2019, and nearly 24 million per month over the first quarter of 2020.

Assessment:

Over the past 12 months, ***1.32 exposures were reported per million capsules*** on the market, a reduction by 68.1% (statistically significant, $p<0.001$) versus the 4.13 cases per million capsules for the baseline period (April 2012-March 2013). Compared to the preceding 12-month period (until March 2019), there was a decrease by 25% (statistically significant, $p<0.001$).

These observations show that since the start of the data tracking in 2012, there has been a strong decrease until 2017. The downward trend was not seen in 2018, but clearly re-appeared as of 2019.


The Netherlands (Utrecht)
Reported exposures per quarter
Capsules sold per quarter
reported exposures
capsules sold
120
100
80
60
40
20
0
80000000
70000000
60000000
50000000
40000000
30000000
20000000
10000000
0
JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM
2012
2013
2014
2015
2016
2017
2018
2019
2020


The Netherlands (Utrecht)
Exposures per million capsules
4.5
4.0
3.5
3.0
2.5
2.0
1.5
1.0
0.5
0.0
2012
2013
2014
2015
2016
2017
2018
2019
Apr-19 - Mar-20

Spain: -49.6% since 2014

To note: for Spain, LLDC market data could not be obtained for the period before 2014. Hence, no market-normalised assessment versus the pre-PSP baseline was possible.

Exposures:

Early 2012 there were very few exposures, in line with the minimal market presence. As of mid-2012, the number of accidental exposures to LLDCs increased, with large fluctuations, to an average of 32.8 reported exposures per month in 2014 (peaking at 60 cases in September 2014). Over the past 12 months, on average 38.3 exposures were reported, slightly less than for the preceding 12-month period (until March 2019) with 40.5 reported exposures per month. Prior to the PSP introduction the absolute number of reported exposures was lower (on average 7.9 cases per month in 2012), but this was in line with the low market presence, just following the product launch.

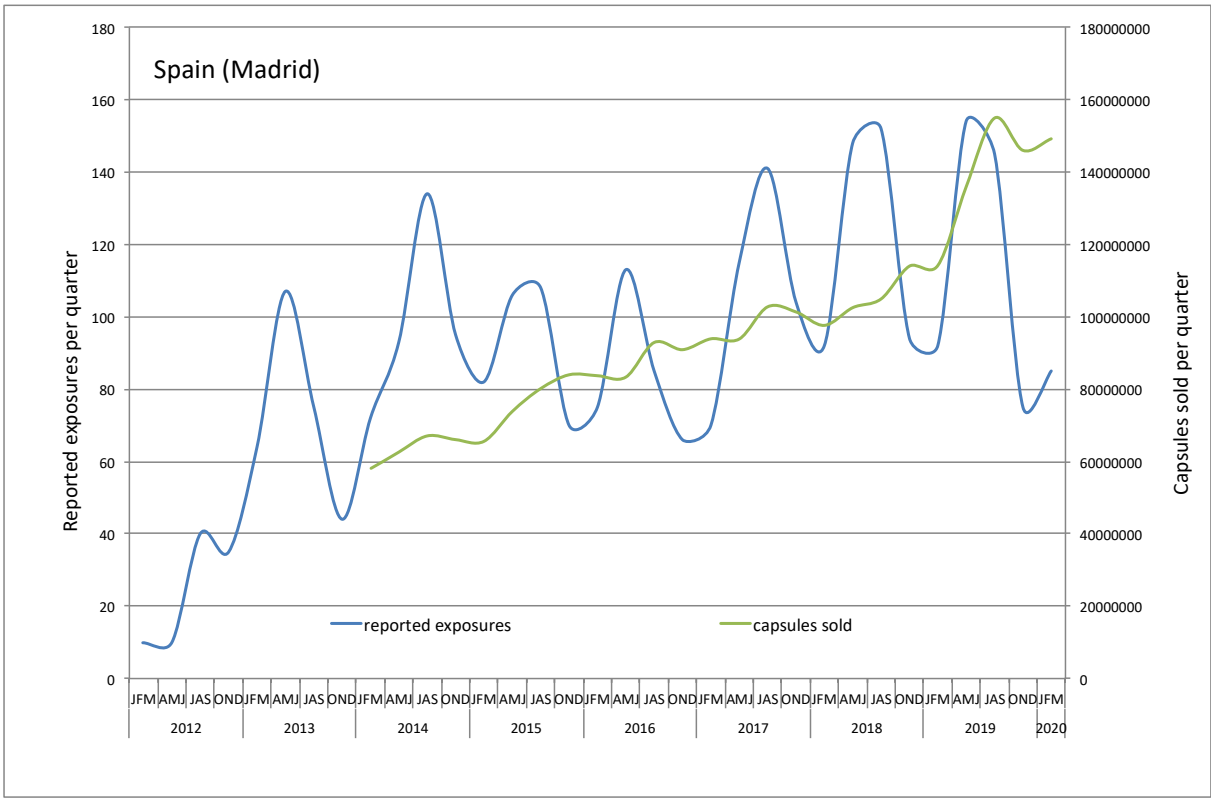
Market:

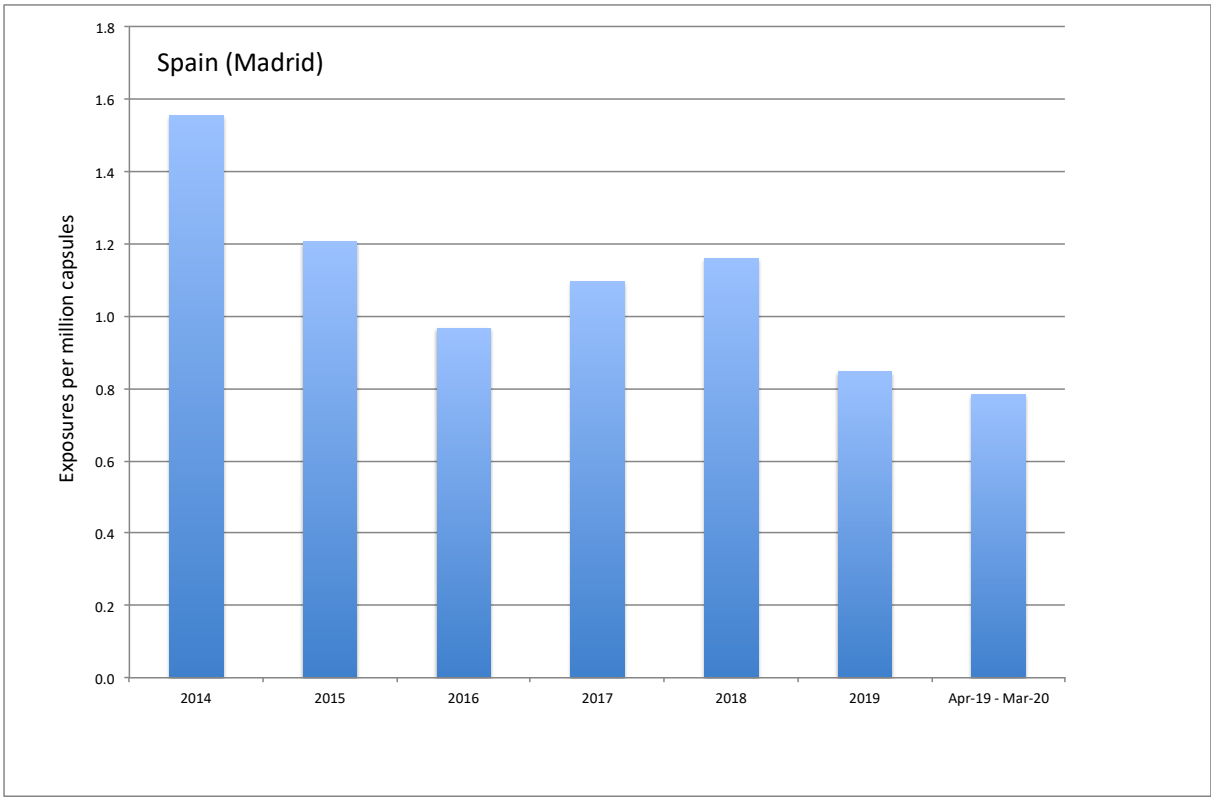
The Spanish LLDC market has grown, since its introduction around early 2012, to an average of 48.8 million capsules per month over the past 12 months. Market data are available as of 2014 (with an average of 21.1 million capsules per month). Since then, the growth has been steady. In March 2020, sales of over 57 million capsules were reached.

Assessment:

Over the past 12 months, ***0.78 exposures were reported per million units*** on the market. This is 49.6% less (statistically significant, $p<0.001$) than for the year 2014, when there were 1.55 cases per million capsules. Compared to the preceding 12-month period, the incident frequency was reduced by 29.8% (statistically significant, $p<0.001$).

These observations show an outspoken decrease until 2016, followed by fluctuations the subsequent years. But in 2019, the downward trend has clearly re-appeared.


Spain (Madrid)
Reported exposures per quarter
Capsules sold per quarter
reported exposures
capsules sold
0
20
40
60
80
100
120
140
160
180
0
20000000
40000000
60000000
80000000
100000000
120000000
140000000
160000000
180000000
JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM AMJ JAS OND JFM
2012 2013 2014 2015 2016 2017 2018 2019 2020


Spain (Madrid)
Exposures per million capsules
0.0
0.2
0.4
0.6
0.8
1.0
1.2
1.4
1.6
1.8
2014
2015
2016
2017
2018
2019
Apr-19 - Mar-20

Annex - Consumer research on 'Yellow Patch' effectiveness

On-line consumer research (InSites Consulting, May 2019) was performed with over 500 people (France n=204; Ireland n=150; Poland n=150), all parents of children maximum 5 years old, and responsible for the purchase and/or use of chemical household products.

The respondents were shown the existing PSP yellow patch (with the A.I.S.E. keep out of reach of children icon) next to an alternative version with a photographic image (in full colour), and were asked which of the two was the best in attracting attention and drive safe use. Next, the same question was asked, but with the photographic image in black and white. In case of the full colour picture there was a 69% versus 14% preference for the photographic execution. Also for black and white the preference for the photograph remained strong (64% versus 21%). These observations were similar across the three countries.

vs.

vs.

In conclusion: a large majority of the respondents claimed that the label including a real picture of a baby was better in attracting attention and driving safe use of laundry capsules. Thus, prompting a more emotive response from consumers to the on label safety instructions is anticipated to make consumers more aware of the safety hazards some products may pose. Even if black and white a picture would be used, it can still be expected to outperforms the current label in terms of attracting attention. The impact of this change will become apparent over subsequent reporting cycles.

In addition, the panellists (split in two subgroups) were shown the current A.I.S.E. safe use icon for ingestion hazard, next to one out of two redesigned alternatives. They were informed that the icon means that the product should not be ingested and if ingested, that medical advice should be sought - and were asked which icon is the best in conveying this message. Both alternatives were judged to be more effective than the original icon, with a slightly better result for the execution with a 'medical cross' (62% preference versus 15% for the current icon) than for the execution with a 'doctor visual' (58% preference versus 19% for the current icon).

vs.

or

In conclusion: both newly proposed ingestion icons are preferred to the current icon. What differentiates them from the current icons is the red coloured throat. Thus, it can be concluded that the addition of this visual element leads to a clearer and more comprehensible icon which makes these icons more suited to convey the message.