GIFTINFORMATIONSCENTRALEN
SWEDISH POISONS INFORMATION CENTRE

Swedish Poisons Information Centre

Annual Report 2019

Contents

The Swedish Poisons Information Centre

The Swedish Poisons Information Centre is a national service focusing on providing information, including guidelines and advices on treatment and general care, to patients with acute intoxications. Counselling is mainly done via our Telephone Service that provides support to national healthcare and the general population, around the clock, every day of the year.

The Swedish Poisons Information Centre has been in practice since 1960 making it one of the oldest Poisons Information centres in Europe. Our objective is to provide advice to the general population and healthcare providers in Sweden healthcare, thereby reducing unnecessary consumption of healthcare in cases of benign exposure and mitigating the harms of toxic exposure.

To be able to give sound and up-to-date advices the Centre has developed a database with more than 8 000 treatment documents based on toxicological and medical data from the published medical literature and from experience gathered through local poison centre data. The documents are evaluated by senior physicians and pharmacists at the Poison Centre prior to publication and are continuously revised and updated. Monitoring of new drugs is considered particularly important in the process of updating the database of treatment documents. By developing our own database, we are able to provide information, well suited to the national toxicological panorama and the national healthcare system.

As according to EU Regulation 1272/2008 (CLP), the Poisons Centre is formally appointed as the body responsible for receiving information about the chemical composition of products classified as hazardous on the basis of their health or physical effects. These are used to develop preventive and therapeutic measures, especially in emergencies.

Other assignments on a national basis are the education of hospital staff and physicians in training (e.g. via an annual five-day course in acute poisoning), contributing to the medical literature through national and international publications of peer reviewed articles and text-book chapters and providing updated clinical advice in toxicology at the Poison Centre web-page for healthcare professionals and general advice concerning poisons and poisonings on the web-page directed to the general public.

The Swedish Poisons Information Centre is a unit within the Swedish Medical Products Agency, a governmental body under the Ministry of Health and Social Affairs. It is financed by appropriations. Approximately 35 people work at the centre, most are pharmacists and physicians specialised in anaesthesia, intensive care and toxicology.

Summary

- During 2019 the Telephone Service answered 94 882 telephone calls, an increase of 1,5 % compared to 2018.
- The number of calls from the healthcare system increased more than 7 % compared to 2018 representing 33 % of all calls during 2019. These calls are generally more complex than those from the general public. In almost 7 000 calls, consultation with a senior consultant (a physician specialised in intensive care and toxicology) was needed, an increase of about 22 % compared to 2018.
- Paracetamol is still the most common drug intoxicant. The slow-release formulation of paracetamol (665 mg tablets) was withdrawn from the Swedish market in June 2018 after a decision from the European Commission initiated by a signal from the Swedish Poisons Information Centre to the EU Pharmacovigilance Committee (PRAC). After this, the number of calls regarding overdoses of slow-release paracetamol is continuously decreasing, but the total number of calls about paracetamol increased in 2019.
- The Swedish Poisons Information Centre has published 2 scientific articles and participated in several international congresses (see list at the end of this publication).
- The annual course in acute toxicology, for residents in emergency medicine, internal medicine and anaesthesia and intensive care was held in November 2018. Besides this course the Centre has provided about 75 seminars and lectures, mostly to physicians and other healthcare workers.
- A new software is under development to be connected to the new portal from Echa. The EU-harmonized Poison Centre notification (PCN)-portal will be used for the submission of the requested information in the EU regulation (EC) 1272/2008 (CLP) article 45 on the composition of chemical products.
- At the end of 2019 the Centre moved from its former site, where it had resided since 1960, to a new office.

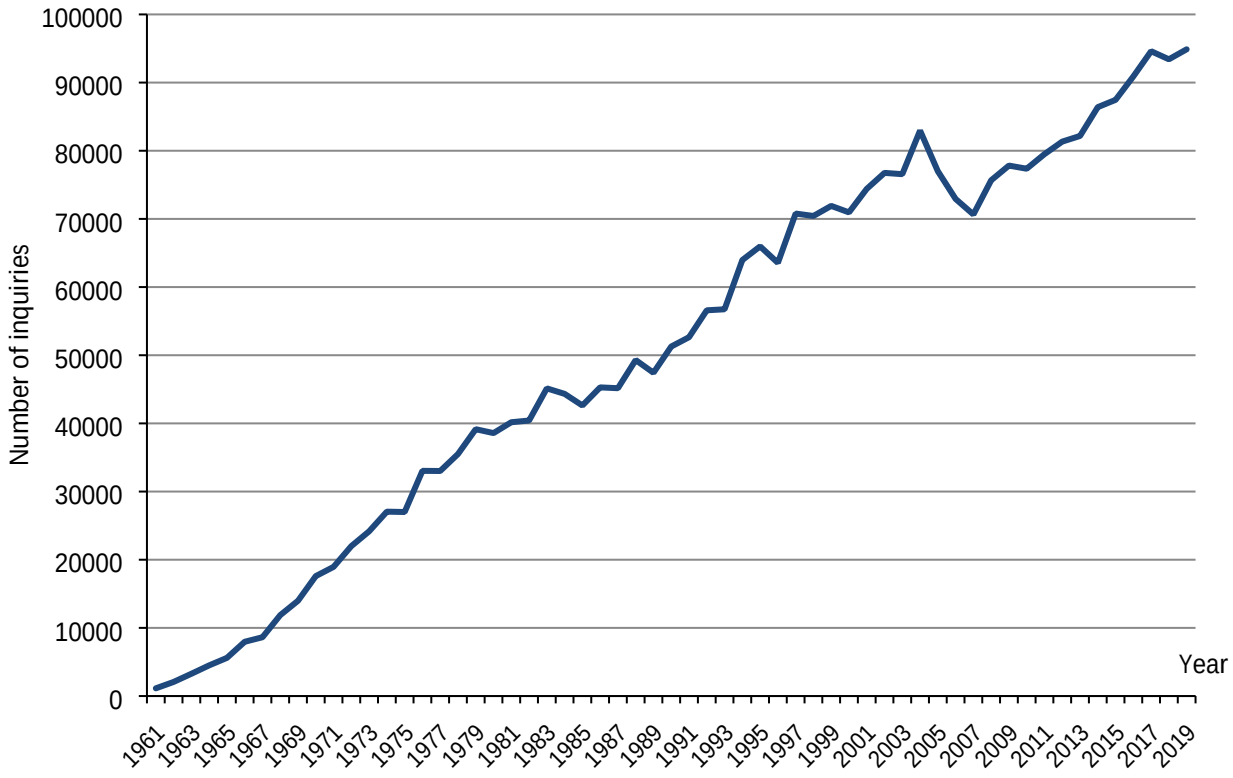
Telephone Service

The main responsibility of the Swedish Poisons Information Centre is to give advice to healthcare professionals and general public in cases of acute poisoning with e.g. pharmaceuticals, chemical products or biological toxins.

The information is provided by telephone 24 hours a day, every day of the year. The telephone service is connected to the national emergency number 112 and it is always manned with pharmacists and one anaesthetist on duty call. Health care professionals and emergency services have access to their own priority telephone lines.

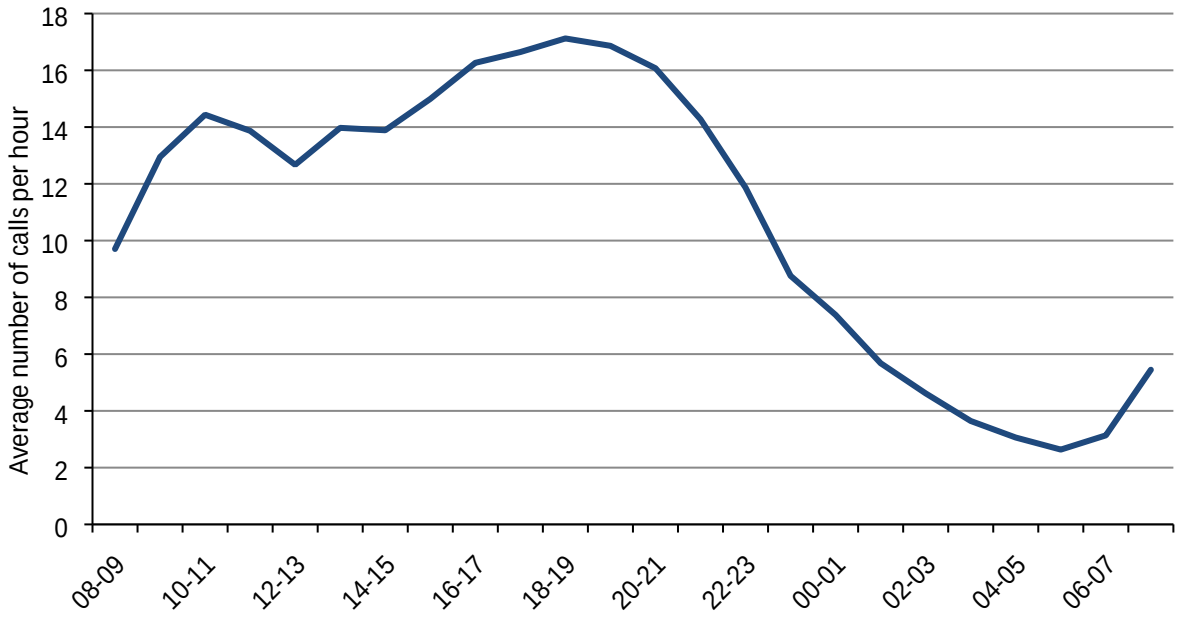
The development in number of calls from 1961 to 2019 is illustrated in Figure 1.

Figure 1. Development in number of calls to Swedish Poisons Information Centre 1961-2019



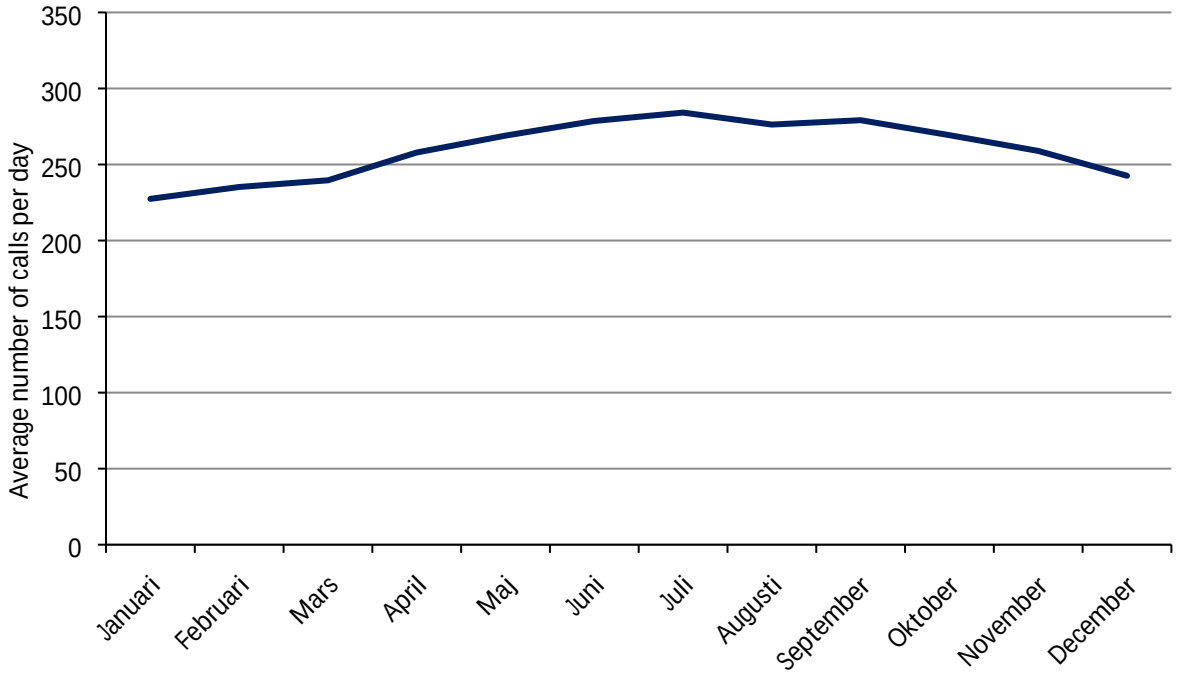
The average number of calls per 24-hour was 260, with the main peak of incoming calls between 4 and 8 p.m., and a second peak around 10 a.m. The 24 hours variation in number of calls is shown in Figure 2.

Figure 2. Average number of calls per hour during the day



Generally, the most intense period for the Poisons Centre is summer to early fall, which can be seen in Figure 3. This is the season when both children and adults are exposed to berries, mushrooms, wasps and snakes to a higher extent. In 2019, the average number of calls per 24 hours during May to September was 277. Despite colder weather than the year before, there were still a high number of inquiries about viper bites in 2019. The number of inquiries about mushrooms were around average (1615 in total).

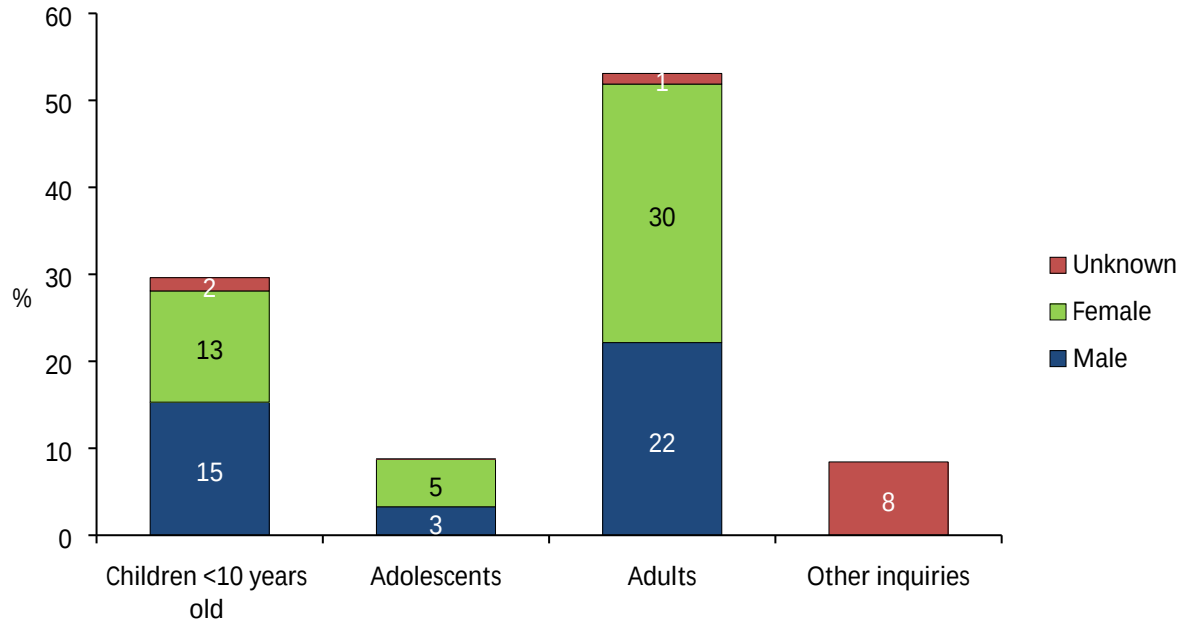
Figure 3. Seasonal variation, average number of calls per day



Of the 94 882 calls the Centre received during 2019, 86 885 concerned human poisonings/incidents. The remainder was requests for general information (6 995 calls) or

concerned animals (1 002 calls). The distribution is illustrated in Figure 4.

Figure 4. Distribution of received calls



(n=94 882)

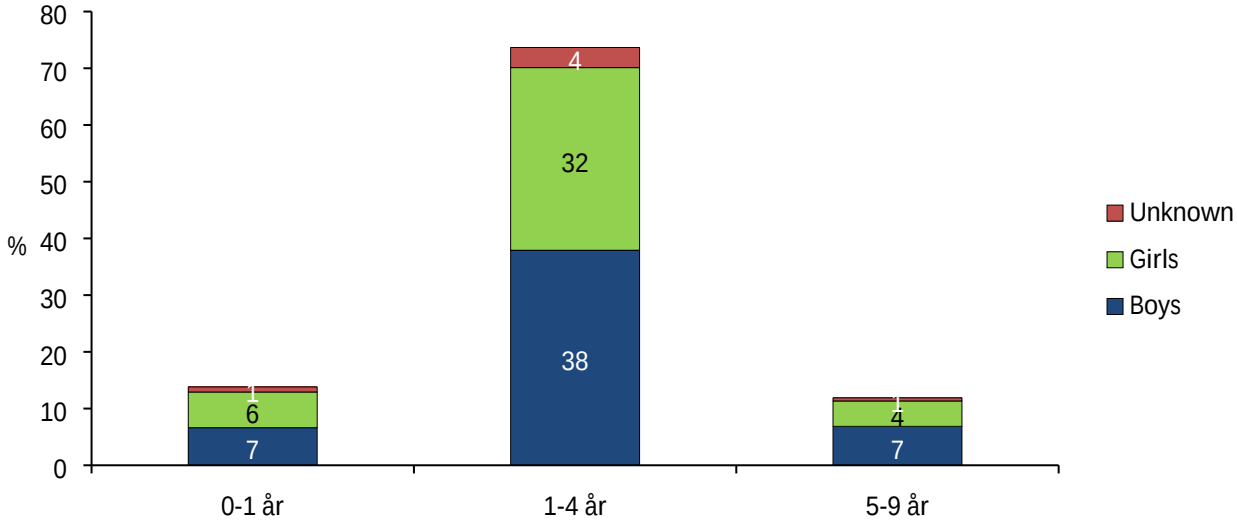
Human Poisonings/Poisoning Incidents

A majority of the 86 885 calls concerning human poisonings/incidents came from general public (62 %), 35 % from health care professionals and only a few percent came from other sources. An increasing proportion of calls from health care professionals has been a trend since many years.

Poisoning incidents among children <10 years

The Poisons Centre received 28 096 calls concerning children <10 years. 74 % of these inquiries involved children aged 1-4 years, and boys more often than girls (Figure 5). Most of the poisoning incidents occurred at home. Ingestion was the main route of exposure (88 % of the cases).

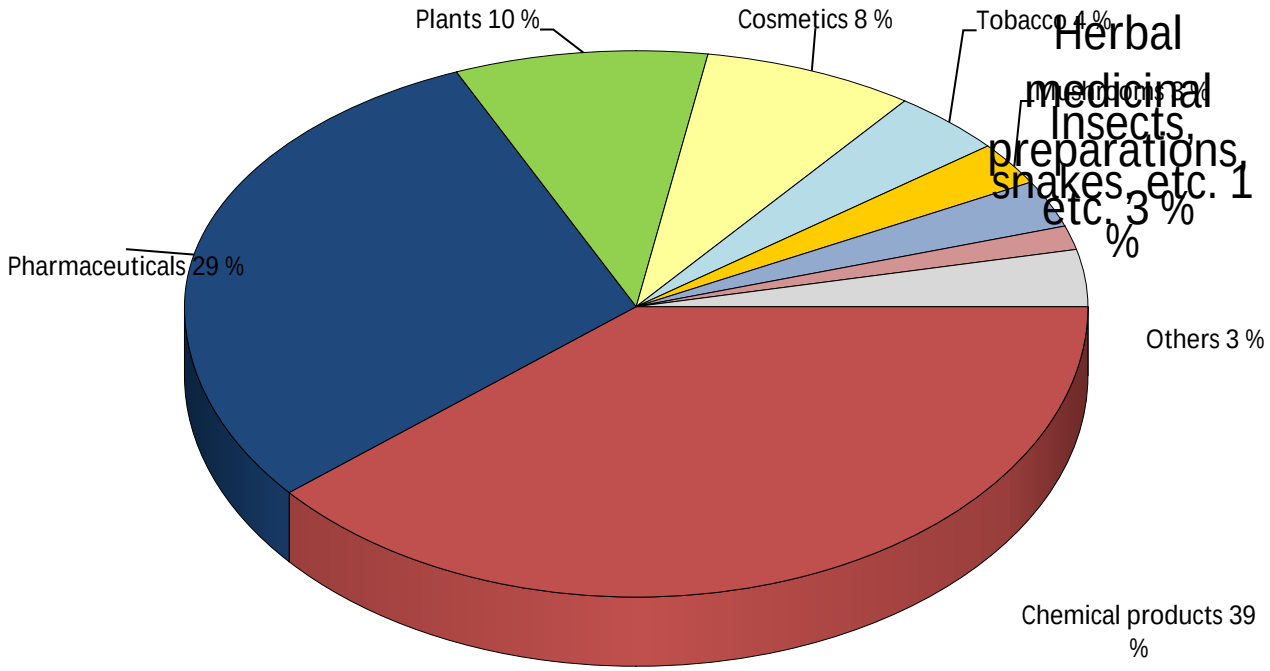
Figure 5. Incidents – age/gender (%), children < 10 years



(n=28 096)

Nearly half of the inquiries concerned children who had tasted chemical products, mostly household products or products for personal care, 29 % involved pharmaceuticals and 10 % plants. The remaining inquiries involved tobacco, mushrooms, insects and snakes (Figure 6).

Figure 6. Poisoning agent (%), children <10 years



(n=28 096)

Chemicals/chemical products - children <10 years

The chemicals/chemical products most frequently involved in poisoning incidents among children <10 years are listed below (% of total number of inquiries about chemical products in brackets)

- **Cleaning products** (40 %). E.g. dishwasher detergents (12 %), washing-up liquids, laundry powder, wc-blocks/cleaning, and all-purpose cleaners (4-5 % each).
- **Disinfectants** (5 %). E.g. products containing ethanol/isopropanol.
- **Household products** (5 %). E.g. acetic acid, table salt.
- **Pesticides** (4 %). E.g. insecticides, rodenticides.
- **Batteries** (4 %). E.g. button batteries, cylindrical batteries.

The most common cosmetics and products for personal care involved in incidents were skin lotions, nail care products containing acetone/acetate, dental care products with fluoride and liquid soap/shampoo.

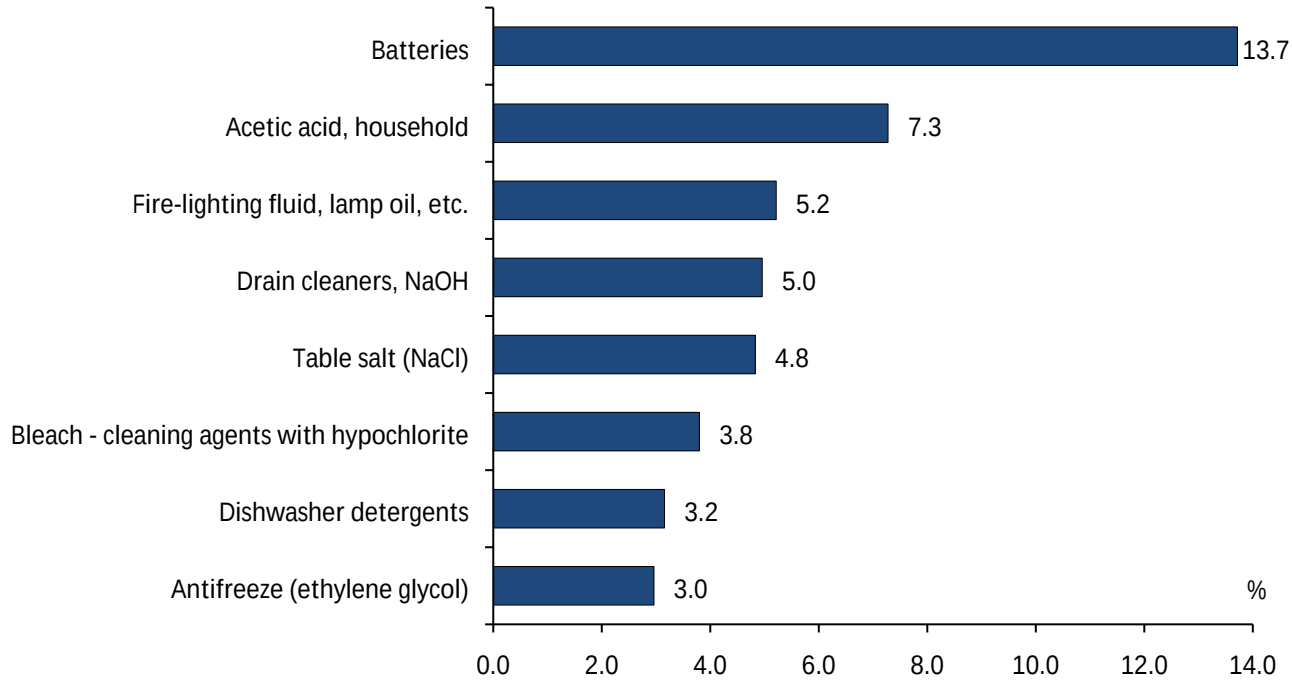
The number of paediatric poisoning incidents involving chemical products or cosmetics (13 256 in total) decreased by 6 % in 2019 compared to 2018, just as the year before. The estimated risk was minor in 88 % of these cases and could be dealt with at the accident site. The remaining 12 % were recommended to seek medical care, or advice was given directly to health care personnel treating the patient.

The most common poisoning incident that led to a recommendation to seek medical care was swallowing button batteries. A button battery can cause severe damage if it gets stuck in the oesophagus.

In 33 % of the calls that led to an advice to seek medical care the child had ingested a corrosive product, e.g. 24 % household acetic acid, drain cleaners, wart removing agents, bleaching/cleaning agents with hypochlorite, and descaling products. Another common type of product that often require hospital care among children is petroleum distillates (e.g. fire lighting fluid, lamp oil, fuel, white spirit), which can cause chemical pneumonitis if aspirated. However, these cases have decreased from around 4-500 yearly in the beginning of the 2000s to 107 in 2019.

The most common chemical products where the incidents were judged to be hazardous are listed in Figure 7.

Figure 7. Most common chemicals/chemical agents or cosmetic leading to medical care (% of the total number of chemical products leading to medical care) children < 10 years



(n=1 553)

Pharmaceuticals – children <10 years

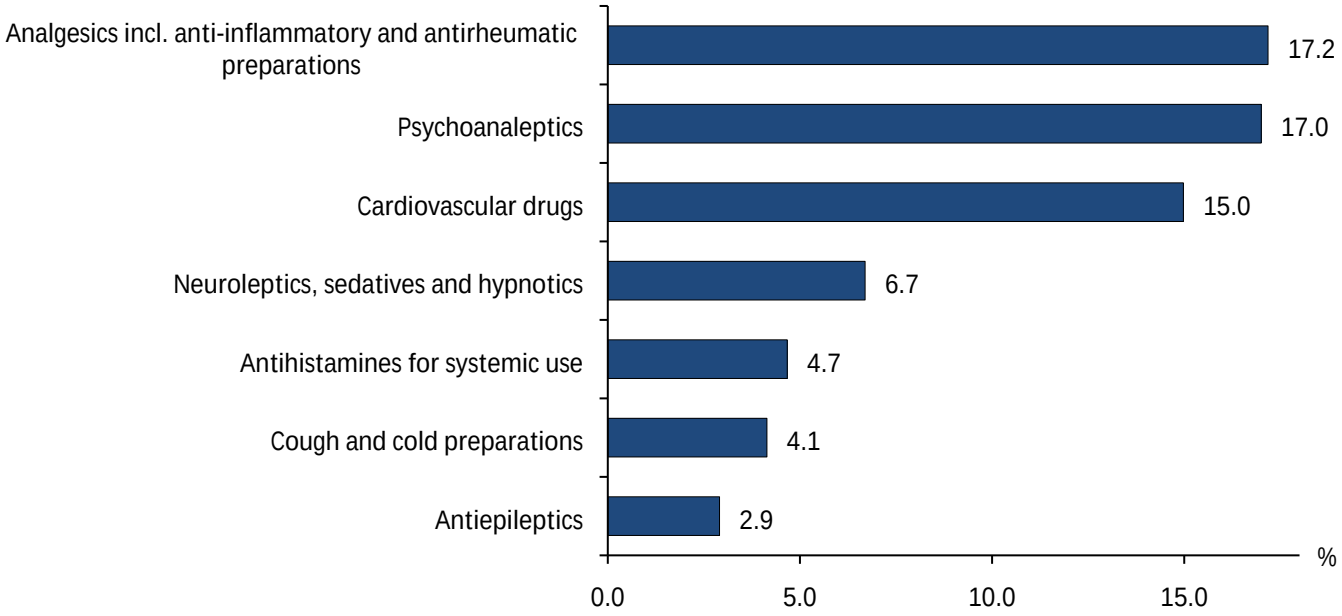
The pharmaceuticals that were most frequently involved in poisoning incidents in children <10 years are listed below (% of total number of inquiries about pharmaceuticals in brackets).

- **Analgesics, including anti-inflammatory and anti-rheumatic pharmaceuticals.** (25 %). E.g. paracetamol (14 %), ibuprofen (5 %), diclofenac.
- **Cough preparations** (7 %). E.g. ethylmorphine combinations, bromhexine.
- **Vitamins** (7 %). E.g. vitamin D.
- **Dermatological preparations (**6 %**).** E.g. hydrocortisone.
- **Psychoanaleptics including ADHD pharmaceuticals, antidepressants** (6 %). E.g. methylphenidate, sertraline.
- **Antihistamines for systemic use** (6 %). E.g. desloratadine.

The risk of poisoning was considered minor in 86 % of the 8 084 inquiries related to pharmaceuticals. Common incidents, usually harmless, involve vitamins, birth control pills, and cortisone preparations. This is true also for natural remedies (which are not included in the above list).

In 14 % of the inquiries the caller was recommended to seek medical care or advice was given directly to health care personnel treating the patient. The most common pharmaceuticals in these cases are listed in Figure 8. Some quite toxic pharmaceuticals, such as anti-malaria drugs, do not appear in this figure, as the total number of poisoning incidents with these pharmaceuticals was low.

Figure 8. Most common pharmaceuticals leading to medical care (%), children < 10 years.



(n=1 135)

Plants – children <10 years

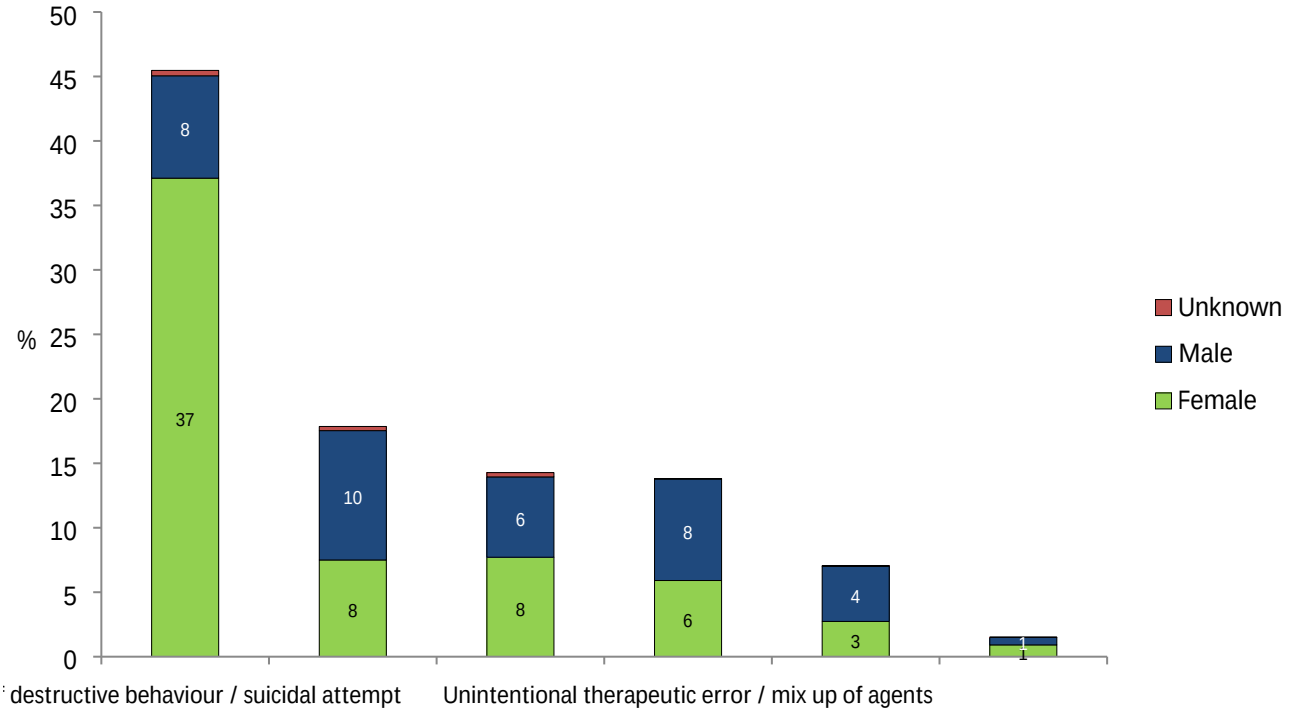
Child poisoning incidents involving plants are usually harmless. In less than 5 % of the 2 855 inquiries the caller was recommended to seek medical care or advice was given directly to health care personnel treating the patient.

The most common incidents with poisonous plants involved lily of the valley, laburnum flower, yew, monkshood, mezereon and foxglove. Other incidents that caused symptoms, although not poisonings, were cases where children had tasted plants with irritating sap (e.g. Zamioculcas), or had got irritating sap in the eyes.

Poisoning incidents in adolescents 10-19 years old

The total number of inquiries to the poisons centre concerning adolescents 10-19 years was 8 412. Of these inquiries almost 50 % related to attempted suicide or self-harm, in most cases with pharmaceuticals. In additionally 11 % of the cases the overdose was intentional, but with unclear purpose. A fifth of the incidents were due to accidents and 7 % to abuse. Figure 9 shows the different reasons for poisoning.

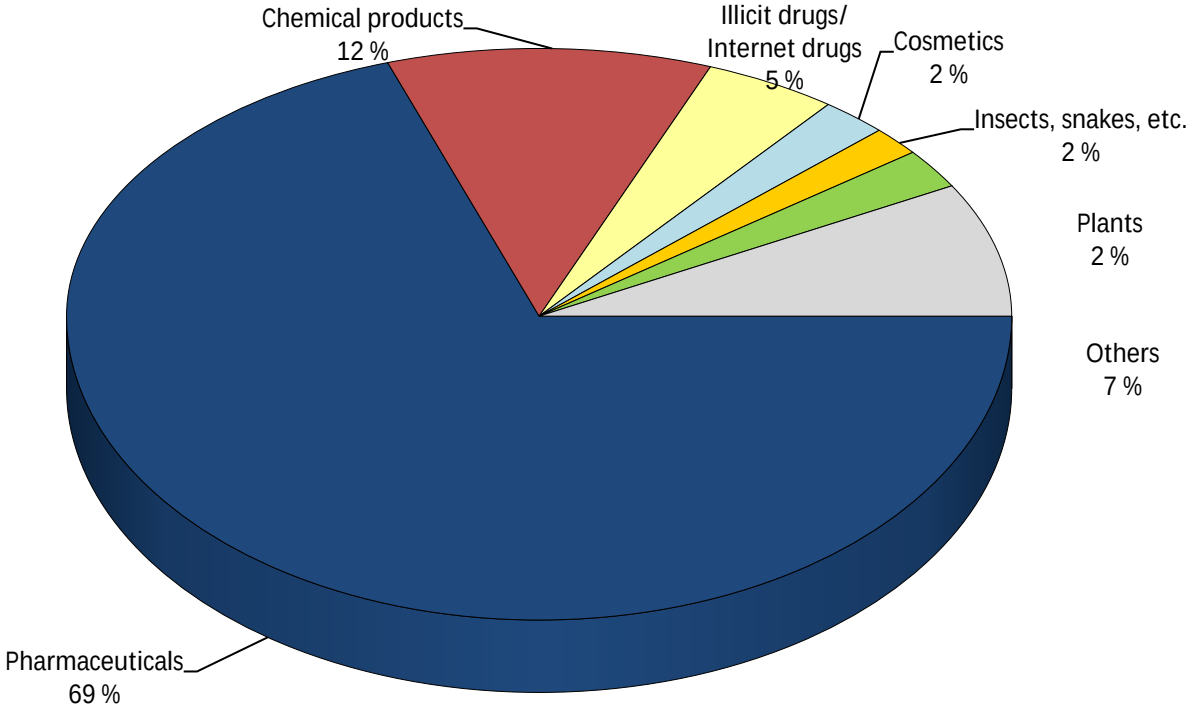
Figure 9. Reason for poisoning, adolescents 10-19 years old



(n=8 412)

In the adolescent group, poisoning with pharmaceuticals was most common and amounted to almost 70 % of the inquiries. Chemicals/chemical products accounted for 12 % of the calls, while other poisoning agents were used less commonly (Figure 10).

Figure 10. Poisoning agent (%), adolescents 10-19 years old



(n=8 412)

Pharmaceuticals – adolescents 10-19 years

The pharmaceuticals, including herbal medicine preparations, most frequently involved in poisoning incidents among adolescents 10-19 years old are listed below (% of total number of inquiries about pharmaceuticals in brackets):

- **Analgesics, including anti-inflammatory and anti-rheumatics (29 %).**
  E.g. paracetamol (18 %), ibuprofen (6 %), tramadol.
- **Psychoanaleptics, including ADHD pharmaceuticals, antidepressants (26 %).**
  E.g. sertraline (7 %), methylphenidate (6 %), lisdexamfetamine (4 %), fluoxetine.
- **Neuroleptics, sedatives, hypnotics** (16 %). E.g. melatonin, propiomazine, hydroxyzine.
- **Antihistamines for systemic use** (10 %). E.g. promethazine (6 %), alimemazine.

Of the 5 818 inquiries in this group 68 % were recommended to seek medical care or advice was given directly to health care personnel treating the patient. For the remaining 32 % the risk was low. The pharmaceuticals listed above were those most frequently causing a need for hospital care.

The inquiries about illicit drugs and internet drugs concerning this age group amounted to 408. Of those, 88 % were recommended to seek medical care or advice was given directly to health care personnel treating the patient.

Chemicals/chemical products – adolescents 10-19 years

The chemicals/chemical products most frequently involved in poisoning incidents among adolescents 10-19 years old, are listed below (% of total number of inquiries about chemical products in brackets)

- **Cleaning products** (26 %). E.g. washing-up liquids, all-purpose cleaners, dish washer detergents.
- **Gases** (11 %). E.g. fire gases, carbon monoxide/exhaust fumes.
- **Fuel** (9 %). E.g. petrol (6 %), fire-lighting fluid.
- **Disinfectants** (9 %). E.g. products containing ethanol/isopropanol.

Inquiries about cosmetics/products for personal care most commonly involved products for nail, hair or skin care. Incidents with these products are in most cases harmless, but eye exposure to for instance hair colouring may constitute a risk.

The risk of poisoning was considered minor in 62 % of the 1 243 inquiries and could be cared for at the site of the incident. The remaining 38 % were recommended to seek medical care, or advice was given directly to health care personnel treating the patient. The most common chemical products that lead to medical attendance in this age group were corrosive products (e.g. cleaning/bleaching agents with hypochlorite, acetic acid (conc. 24 %), chemicals used for swimming pool care), petrol (which can cause pneumonia if aspirated and also constitutes a risk if inhaled) disinfectants with ethanol/isopropanol, and gases (e.g. carbon monoxide, fire gases).

Most of the incidents were caused by mistakenly swallowed chemical products/cosmetics or personal care products. In 10 % of the cases the chemical products were ingested in a self-harming purpose. Incidents caused by eye contact or inhalation were also relatively common.

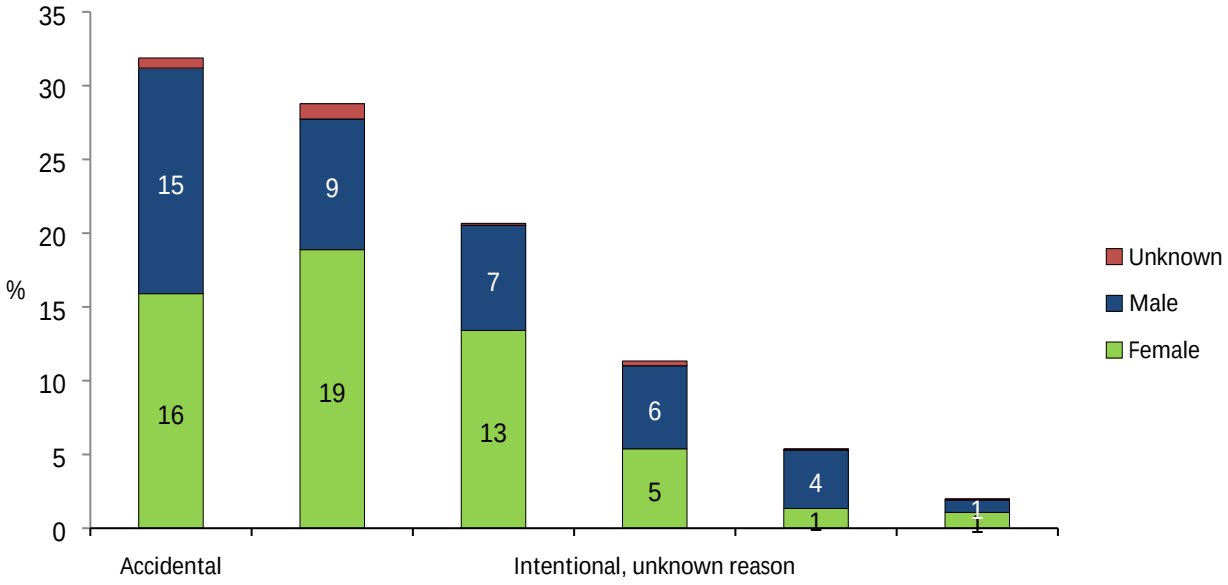
Poisonings/poisoning incidents in adults

Among adults, various types of accidental exposures, including workplace accidents and incidents during do-it-yourself activities, caused close to one third of the 50 377 inquiries (Figure

11). However, 46 % concerned intentional incidents, including suicide attempts and abuse, mainly by using pharmaceuticals or illicit drugs/internet drugs. A large majority of the serious poisonings belong to this category.

One fifth of the inquiries concerned therapeutic errors/mix up of agents. In this group, unintentional overdosing of pharmaceuticals at home dominated (mostly double dose), which rarely results in poisoning.

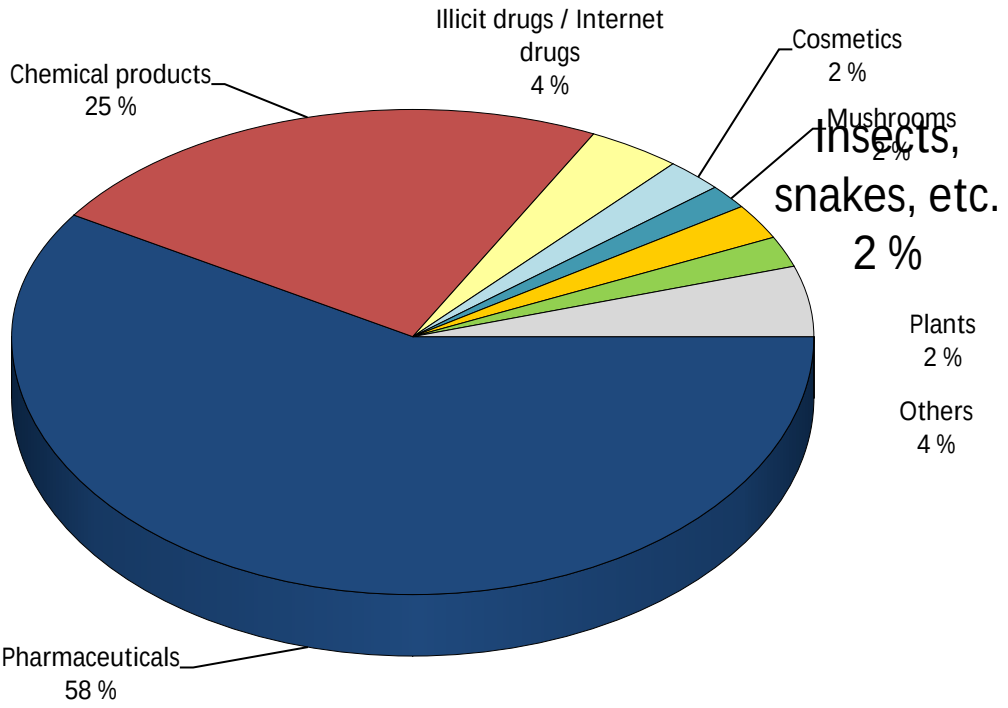
Figure 11. Reason of poisoning (%), adults



(n=50 377)

Over half (58 %) of all adult poisoning inquiries were related to pharmaceuticals. Inquiries about chemicals/chemicals products constituted 25 %, illicit drugs/internet drugs 4 %, while plants, cosmetics, insects, snakes and mushrooms caused a minor part of all incidents (Figure 12).

Figure 12. Poisoning agent (%), adult



(n=50 377)

Pharmaceuticals – adults

The pharmaceuticals, including herbal medicine preparations, most frequently involved in poisoning incidents among adults are listed below (% of total number of questions about pharmaceuticals in brackets)

- **Neuroleptics, sedatives, hypnotics** (23 %). E.g. zopiclone (4 %), propiomazine (3%), quetiapine, oxazepam.
- **Analgesics, including anti-inflammatory and anti-rheumatic pharmaceuticals** (22 %). E.g. paracetamol (10 %), ibuprofen (3 %), oxycodone, tramadol.
- **Psychoanaleptics, including antidepressants, ADHD pharmaceuticals** (13 %) E.g. sertraline, venlafaxine, methylphenidate.
- **Antihistamines for systemic use** (7 %). E.g. promethazine (4 %), alimemazine.
- **Antiepileptics** (5 %). E.g. pregabalin, lamotrigine.

Among the 29 269 inquiries concerning adults who had ingested pharmaceuticals, 60 % were recommended to seek medical care, or advice was given directly to health care personnel treating the patient. In this group there were many serious cases of overdosing. For the remaining 40 %, the risk of poisoning was considered relatively low. Many of the harmless incidents were related to persons who accidentally had taken a double dose of a medicine.

In adults, the number of inquiries related to internet drugs or illicit drugs amounted to 1 991. Out of these, 75 % were recommended to seek medical care or advice was given directly to medical personnel treating the patient. In most of the cases, the drugs involved were well-known substances such as amphetamine, cocaine and ecstasy. Only a small part of the inquiries concerned new designer drugs, i.e. the opposite situation compared to around five years ago.

Chemicals/chemical products – adults

The chemicals/chemical products most frequently involved in poisoning incidents among adults are listed below (% of total number of questions about chemical products in brackets):

- **Cleaning products** (27 %). E.g. washing-up liquid, cleaning/bleaching agents with hypochlorite, drain cleaners with NaOH, descaling agents with acid.
- **Gases** (13 %). E.g. fire gases, carbon monoxide/exhaust fumes.
- **Disinfectants** (9 %). E.g. products containing ethanol/isopropanol.
- **Car products** (7 %). E.g. antifreeze/brake fluids, lubricants.
- **Industrial chemicals** (7 %). E.g. acids, sodium hydroxide, ammonia.
- **Fuel** (6 %) E.g. petrol, fire-lighting fluid/lamp oil.

Inquiries about cosmetics/products for personal care mostly involved skin care products, hair colouring agents, nail care products and preparations for treating warts. Incidents with these products are mostly harmless, but anti-wart agents can be corrosive, and eye exposure to hair colouring or some nail care products may constitute a risk.

The risk of poisoning was considered relatively low in 61 % of the 12 690 inquiries about adult exposures and care at the incident site was sufficient. For the remaining 39 % the caller was recommended to seek medical care, or advice was given directly to health care personnel treating the patient. The products that most frequently required medical care were those containing ethanol/isopropanol (e.g. disinfectants, solvents), gases (e.g. fire gases, carbon monoxide/exhaust fumes, irritant gases), corrosive products (cleaning/bleaching agents with hypochlorite, drain cleaners, alkaline cleaning agents, descaling agents) and anti-freeze agents containing ethylene glycol. In cases where disinfectants or antifreeze agents caused severe poisoning requiring hospitalization, the products had in most cases been consumed as a substitute for alcohol.

In slightly above half of the inquiries related to chemicals, the route of exposure was through inhalation or eye contact. Ingestion of a chemical product by mistake was also relatively common.

Animal poisonings/poisoning incidents

The Poisons Centre previously offered treatment advice concerning poisoning of animals, depending on available time and access to information. However, since July 1, 2018, inquiries about animals are referred to a veterinarian. In 2019, a total of 1 002 calls concerning animals were referred.

Assignments and collaborations

International

- Member of European Association of Poisons Centres and Clinical Toxicologists (EAPCCT) Working Group on Poisons Centre Activities/European Regulatory Issues.
- Member of the editorial board for the journal of Clinical Toxicology, and referee assignments for the same journal.
- Member of the European Chemical Industry Council (CEFIC) ICE Integration group. In collaboration with IKEM –Innovation and Chemical Industries in Sweden.

Publications

1. Nordmark Grass J, Lindeman E, Höjer J, Personne M. ”Simplified N-acetylcystein treatment after paracetamol overdose – new recommendations from the Swedish Poisons Information Centre “Ny förenklad motgiftsbehandling vid förgiftning med paracetamol. Läkartidningen 2019; 116.
2. Nordmark Grass J, Elmgren A, Helander A. ”Improved and harmonised laboratory analysis of paracetamol provides safer assessment of poisoning cases” Bättre labbanalys av paracetamol ger säkrare bedömning av förgiftningsfall. Läkartidningen 2019; 116

Other Publications

Book chapter:

1. Barnmedicin, femte upplagan, Studentlitteratur, 2019 Nordmark Grass J. Kapitel – Akuta förgiftningar

Published abstracts:

1. Phan H, Personne M. Quetiapine bezoars. *Poster at the XXXIX Congress of EAPCCT, Naples, May 2019. Clin Toxicol 2019;57*
2. Hultén P, Skagius A, Höjer J. Status epilepticus and cardiac arrest after an overdose of lacosamide: a case report. *Poster at the XXXIX Congress of EAPCCT, Naples, May 2019. Clin Toxicol 2019;57*
3. Hultén P, Julin M, Arvidsson S, Lindeman E. A snake in the house is worth 14 in the bush: estimating the price of antivenin treatment for exotic snake envenomation in Sweden. *Poster at the XXXIX Congress of EAPCCT, Naples, May 2019. Clin Toxicol 2019;57*
4. Lindeman E, Hernandez P, Salmonson H, Nordmark Grass J. Prescription vs over-the-counter in Swedish paracetamol poisonings. *Poster at the XXXIX Congress of EAPCCT, Naples, May 2019. Clin Toxicol 2019;57*
5. Lindeman E, Fredriksson I. Ecstasy-associated hyponatremia: treat them like marathon runners. *Poster at the XXXIX Congress of EAPCCT, Naples, May 2019. Clin Toxicol 2019;57*
6. Lindeman E, Westerbergh J. Pollyanna in the age of fentanyls. *Poster at the XXXIX Congress of EAPCCT, Naples, May 2019. Clin Toxicol 2019;57*

7. Lindeman E. Gaslighting with atropine. *Poster at the XXXIX Congress of EAPCCT, Naples, May 2019. Clin Toxicol 2019;57*
8. Nordmark Grass J, Lindeman E, Ahlner J, Kugelberg F. The great molasses flood. *Poster at the XXXIX Congress of EAPCCT, Naples, May 2019. Clin Toxicol 2019;57*
9. Lindeman E, Nordmark Grass J, Ahlner J, Kugelberg F. The ocreotide endgame. *Poster at the XXXIX Congress of EAPCCT, Naples, May 2019. Clin Toxicol 2019;57*
10. Nordmark Grass J, Grenmo E. Coagulopathy and the use of ROTEM in a Bothrops asper bite. *Poster at the XXXIX Congress of EAPCCT, Naples, May 2019. Clin Toxicol 2019;57*
11. Nordmark Grass J, Peterson E. Severe intoxication with aspiration in a toddler after ingestion of diluted benzalkonium chloride, a common quaternary ammonium compound. *Poster at the XXXIX Congress of EAPCCT, Naples, May 2019. Clin Toxicol 2019;57*