

# Annual report 2016





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## Editorial



Dear reader,

*The anniversary year filled us with great joy, many memorable moments and it strengthened our pride in this 50-year-old foundation! Tox Info Suisse is a good institution, which responds to a real need! Nearly 40 000 calls received around the clock every year are proof of that.*

*But it is just like in real life: good times are followed by bad times; joy by pain; cold by heat; sunshine by clouds and rainfall...*

*Contrasts determine life and belong together; they alternate.*

*Tox Info Suisse cannot simply rest on its laurels either:*

*The threatening dark thunderclouds appearing in the financial universe are not a pretty sight: appropriate future scenarios and measures must be envisaged to also keep dry in a downpour.*

*Tox Info Suisse is therefore grateful for the continuing financial support from all of the donors to the foundation: this guarantees that the telephone emergency consultation continues to be available free of charge to the general public.*

*We all want to do our utmost around the clock to achieve this goal in future as well.*

A handwritten signature in black ink, which reads "E. Anderegg-Wirth". The signature is fluid and cursive.

Elisabeth Anderegg-Wirth  
President of the Foundation Council of  
Tox Info Suisse

## Tox Info Suisse – The anniversary year in retrospect

After bearing the name of Swiss Toxicological Information Centre for the past fifty years, the Tox gave itself a new corporate design together with an easier and more expressive name: Tox Info Suisse. To guarantee the professional and operative quality of the procedures as well as their reliability, the aspects of the corporate governance were examined and improvements made.

All residents in Switzerland should know the emergency hotline 145! Not only should they have the number close at hand in case of poisoning, they should also keep in mind that this service, provided from a non-profit private foundation for all, deserves the financial support from all, too. Not only is this goal achieved through high-quality and reliable consultations in cases of poisoning, but also through various reporting in all media.

### Anniversary celebrated

At the end of March 2016 a ceremony was held at the "Aura" in Zurich together with and for the important partners of Tox Info Suisse. This event gave the guests the opportunity for exchange in a pleasant atmosphere and to be informed about the activities and history of Tox Info Suisse. After some short presentations and musical performances on topics around poisoning, drinks and a small buffet were served to round off the festivities nicely.



Social gathering of Tox Info Suisse at the "Jucker-Farm"

At the end of October the staff and Foundation Council of Tox Info Suisse, along with their families, met up for a social gathering at the "Jucker-Farm" in Seegräben (canton of Zurich).

In November, at the Anniversary Symposium in the "Aula" of the University of Zurich, national and international speakers reported on new and old topics of clinical toxicology.



Speakers at the Anniversary Symposium on 11 November 2016

### Review of the corporate governance

The Foundation Council took the opportunity of the 50th Anniversary, after having its corporate governance examined by external experts, to strengthen the structures of the foundation and adjust them to meet future requirements. As a result, the statutes and regulations of the foundation were amended to close gaps, redefine tasks and competencies more precisely as well as to assign responsibilities more clearly. Building on this, quality management has been reviewed and adjusted in order that professional and operational processes can be carried out, not only in a reliable way and on a high-quality level, but also with transparency and verifiability. This means that the prerequisites are met in a way that the foundation can continue to fulfil its tasks optimally also in future.

## Toxicological expertise much in demand

Telephone consultations in toxicological emergencies and responding to prevention questions remained the core task of Tox Info Suisse in 2016 as in the past. In addition, the broad expertise of the toxicologists was much in demand in many areas in the public and private domains.

In 2016 the information service of Tox Info Suisse received 39 547 enquiries (+ 2.97% compared to 2015). Two thirds (67.1%) of these enquiries came from the general public, one quarter (26.1%) from medical professionals, and 6.7% from other sources. The website containing up-to-date information regarding poisoning was visited 150 294 times.

### Experts on duty

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Besides the telephone emergency service Tox Info Suisse compiles expert reports and case analyses for the industry and authorities. Senior medical staff regularly carries out clinical toxicological consultations at the departments and emergency unit of the University Hospital of Zurich. Tox Info Suisse also provides medical emergency advice outside office hours for the pharmaceutical and chemical industry, related to material safety data sheets and international transport of hazardous materials. It also performs emergency unblinding in clinical trials.

### Role in the Swiss antidote network

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Mandated by the Swiss Conference of cantonal directors of public health, Tox Info Suisse ensures antidote supply in Switzerland in collaboration with the Swiss Association of Public Health Administration and Hospital pharmacists (GSASA) as well as with the pharmacy of the Swiss Army. Updating the Swiss antidote list and the publication of monographs and leaflets on antidotes are also tasks of Tox Info Suisse.

### Education

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Hugo Kupferschmidt contributes to the training of students as lecturer at the school of medicine at the University of Zurich, and in the MSc in Toxicology and MAS in Toxicology programmes at

the Universities of Basel and Geneva. Permanent academic staff regularly gives lectures in clinical toxicology for the postgraduate and continuing education of physicians and other members of the medical profession and professional organisations. Of particular note is the all-day seminar for paramedics offered twice a year in collaboration with the Advanced College for Rescue Service Professions. Structured education rounds are offered to the staff of Tox Info Suisse on a weekly basis.

### Scientific activities

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Research projects are conducted under the lead of the scientific services of Tox Info Suisse in line with the association with the University of Zurich. The main focus of the research efforts are the toxicoepidemiology as well as the dose-effect-relationships in human poisoning, in particular related to drug overdose. Part of this work is performed in the context of medical theses. The research results were presented at national and international scientific meetings, including the annual congress of the European Association of Poisons Centres and Clinical Toxicologists (EAPCCT), the North American Congress of Clinical Toxicology (NACCT), the annual meeting of the Society of Clinical Toxicology (GfKT), the Swiss Society of General Internal Medicine (SSGIM) and the Swiss Society of Clinical Pharmacology and Toxicology. Publications are listed on page 22 and on the website.

## Methemoglobinemia in children, CO from water pipes, paracetamol

### Methemoglobinemia in children

Methemoglobinemia occurs when an elevated concentration of methemoglobin (MetHb, oxidized form of haemoglobin) is present in the red blood cells. MetHb transports oxygen insufficiently, which leads to oxygen deficiency in tissues. Beside the typical bluish discolouration of the lips, nose and fingers (cyanosis), other symptoms of methemoglobinemia can be grey skin colour, shortness of breath, elevated respiratory rate, vomiting, dizziness or even unconsciousness as well as cardiac arrhythmias and seizures.



In a study Tox Info Suisse analysed 16 pediatric cases of methemoglobinemia between 1996 and 2016. Most of the children involved in this study were 8 to 12 months old. Their MetHb levels were between 10 and 57% (median 25%); normal values are less than 2%. The child referred with a MetHb level of 10% was clinically asymptomatic. With rising levels of MetHb, four children developed minor symptoms, six children moderate symptoms and four children severe symptoms. In one case, there was no information available about symptoms. Eight children were administered methylene blue as antidote and all of them recovered without sequelae.

In two cases, the cause of methemoglobinemia remained unclear. In three cases, it was due to the therapeutic use of local anaesthetics (lidocaine/prilocaine). In two cases, methemoglobinemia was caused by an overdose of dapsone, an antimalarial drug, and, in one case, a 15-year-old developed it

because of abusive consumption of poppers (amyl nitrite). In eight cases, methemoglobinemia was triggered by vegetable mash (3x turnip cabbage, 2x fennel, 2x courgette and 1x spinach). These vegetables may contain high nitrate levels depending on climate conditions and cultivation methods. Bacteria, which are in or on plant-based foods, can produce nitrite out of nitrate. As an oxidant, nitrite converts haemoglobin to MetHb. Warm temperatures and mashing favour nitrate formation in vegetable purée. Compliance with hygiene measures, quick cooling of mash, and use of outdoor and low nitrate vegetables such as tomatoes, cucumbers, carrots and potatoes will reduce the risk of nitrite formation.

### Carbon monoxide poisoning by water pipe smoking

Smoking the water pipe is a growing trend in the Western world and it is popular especially amongst teenagers and young adults. Many think that water pipe smoking is less harmful to health than cigarette smoking, although water pipe smoke contains the same harmful substances as cigarette smoke. A single water pipe session of 45 to 60 minutes is the same as smoking about 100 cigarettes. Moreover, when smoking shisha, substantial amounts of carbon monoxide (CO) are released by the combustion process. The medical literature describes several cases of CO poisoning by water pipe smoking. Tox Info Suisse has also recorded similar poisoning cases.



The symptoms of carbon monoxide poisoning are non-specific. Therefore, initially they will not necessarily be associated with shisha smoking. The typical symptoms are nausea, vomiting, headache and dizziness. More often than not, transient loss of consciousness due to CO poisoning is the reason for hospitalisation. The carbon monoxide levels measured in the blood of the patients (COHb) described in medical literature are between 5.3 and 39.2% – the normal value in non-smokers is 1 to 2%, in heavy smokers 5 to 10%. The administration of 100% oxygen is the treatment of carbon monoxide poisoning until COHb reaches values <5%. In case of severe symptoms and high levels of COHb, hyperbaric oxygen therapy may be considered, but its benefits are controversially debated in the medical literature.

In case of non-specific symptoms appearing after water pipe smoking, it is important to keep in mind the possibility of carbon monoxide poisoning and to check the COHb levels in the blood.

### Paracetamol poisoning

Analgesics containing paracetamol are popular and widely used. Therefore, it is not surprising that both intentional and accidental overdoses occur frequently. Tox Info Suisse provided consultations for about 600 cases per year until 2005, but as of 2016 this figure increased to about 1,200 annually (fig.1). Until 2004 oral paracetamol preparations would contain a maximum of 500 mg of the active agent, but later 1g tablets were also released onto the market. This may give reason to suspect that the rise in paracetamol poisonings is linked with the dosage strength of preparations.

### Highlights

Starting from 2005 there have been more severe and even fatal paracetamol poisonings. Nevertheless, poisonings with 1g preparations do not statistically have a more serious clinical course than those with preparations of reduced dosage strength. At most, statistical analysis shows a trend in this direction. This is very likely due to the fact that a therapy with N-acetylcysteine as an antidotal treatment is given to patients in a timely fashion.

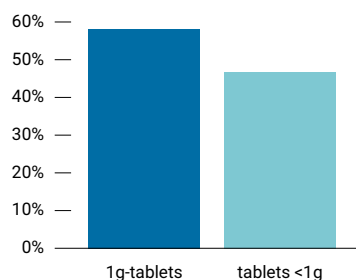
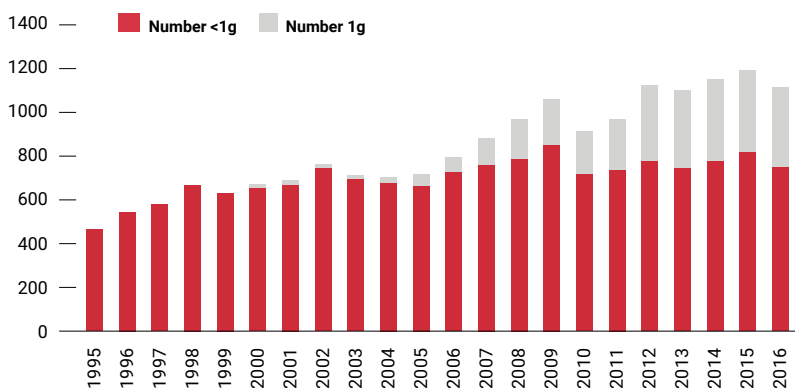


Fig.2: Number of cases of potential hepatotoxicity with oral dose (>10g) in cases of intentional paracetamol poisoning, broken down by preparation of 1g tablets vs tablets of reduced dosage strength (<1g).

On the other hand, the number of patients requiring such antidote therapy (i.e. with a dose >10g corresponding to >150mg/kg body weight) is significantly higher in cases of intentional mono-intoxication with 1g than <1g preparations (fig. 2); there is, however, no difference in cases of accidental poisoning. As a result, since the introduction of 1g preparations, there are more cases of intentional poisoning with patients reaching the levels of potential hepatotoxicity and requiring inpatient antidotal treatment to avoid the risk of liver failure. This means that these patients are exposed to a higher risk and subsequent higher health-care costs.

Fig.1: Number of cases per year of paracetamol overdoses Tox Info Suisse registered from 1995 to 2016, based on dosage strength of preparations (1g vs <1g).



## Emergency hotline 145: number of enquiries rising

Year after year, Tox Info Suisse receives more calls. In 2016 this figure was 23.84% higher than 10 years ago. This shows that a personal medical consultation cannot be replaced by the internet.

The core service of Tox Info Suisse is the free telephone emergency consultation for the general public and for medical professionals in all situations of acute or chronic poisoning. Tox Info Suisse also answers theoretical calls without exposure and thus significantly contributes to the prevention of accidental poisoning. All enquiries are electronically recorded in a database which is the basis for this annual report and for scientific analyses. Medical confidentiality and data protection are respected.

### General overview of all enquiries

#### Number of enquiries

In 2016 Tox Info Suisse received 39 547 enquiries. This represents a 2.97% increase in comparison with the previous year.

#### Origin of enquiries

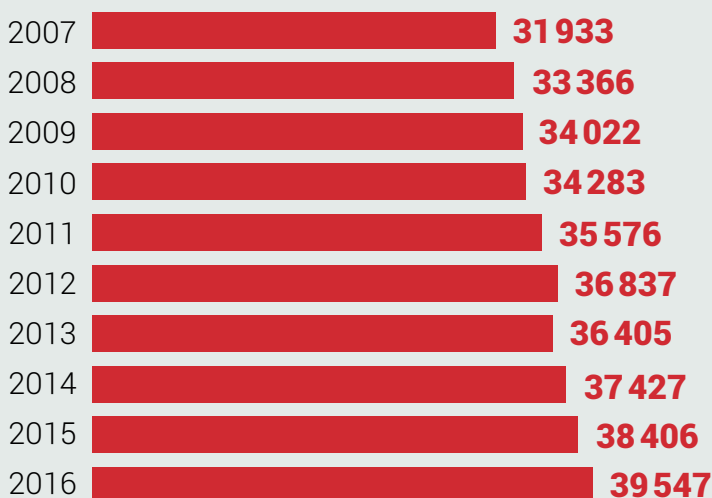
The largest number of enquiries came from the general public, which reflects its need for information and the growing reputation of Tox Info Suisse. Physicians used our services 8833 times. The majority of these enquiries originated from hospital physicians, which corresponds to the trend that emergency care is increasingly provided by hospitals. Veterinarians accounted for 988 enquiries. Pharmacists submitted 525 enquiries to Tox Info Suisse, which is an increase of about 12% compared to the previous year.

In addition, Tox Info Suisse answered 100 requests for information from the media (newspapers, radio and television). 2564 enquiries were received from organisations such as emergency services (+ 11.7%), nursery homes, industry, poisons centres abroad and unspecified organisations.

#### Enquiries with or without toxic exposure

Calls can be subdivided into enquiries without exposure and enquiries where an exposure has taken place. Among the 3082 theoretical enquiries without exposure, information was provided on drugs and antidotes, the toxicity of plants to children and pets as well as the risk of poisoning from spoiled food, household products and chemicals, as well as venomous animals. These recommendations of Tox Info Suisse are predominantly of a preventive nature. This subcategory also includes advice and reports for authorities, media, private individuals and various organisations as well as the distribution of fact sheets and referring enquiries to appropriate experts.

The 36 465 enquiries with toxic exposures concerned 34 462 humans and 2003 animals.



This represents a 23.84% increase over the last ten years.



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## Origin of enquiries by cantons and population groups

Canton	Population	General public	Hospital physicians	Practitioners	Veterinarians	Pharmacists	Various	Total	Calls/1000 inhabitants	
									public	physicians
AG	653 675	2 155	494	62	75	61	182	3 029	3,3	1,0
AI	15 974	49	6	2	4	–	4	65	3,1	0,8
AR	54 543	162	61	13	4	1	18	259	3,0	1,4
BE	1 017 483	3 565	988	153	126	68	326	5 226	3,5	1,2
BL	283 231	893	183	46	26	15	67	1 230	3,2	0,9
BS	191 817	581	403	36	5	25	68	1 118	3,0	2,3
FR	307 461	839	184	23	28	31	75	1 180	2,7	0,8
GE	484 736	1 082	398	70	35	38	122	1 745	2,2	1,0
GL	40 028	91	17	7	6	–	7	128	2,3	0,7
GR	196 610	527	169	42	18	10	28	794	2,7	1,2
JU	72 782	145	90	7	2	7	8	259	2,0	1,4
LU	398 762	1 104	277	64	31	1	152	1 629	2,8	0,9
NE	178 107	500	102	18	27	14	51	712	2,8	0,8
NW	42 420	107	17	6	1	–	7	138	2,5	0,6
OW	37 076	149	27	6	–	4	12	198	4,0	0,9
SG	499 065	1 435	405	65	48	11	159	2 123	2,9	1,0
SH	79 836	255	87	10	15	2	28	397	3,2	1,4
SO	266 418	827	209	44	24	7	78	1 189	3,1	1,0
SZ	154 093	448	111	16	40	4	45	664	2,9	1,1
TG	267 429	858	207	43	30	6	80	1 224	3,2	1,0
TI	351 946	544	349	64	22	31	31	1 041	1,5	1,2
UR	35 973	69	25	3	–	2	6	105	1,9	0,8
VD	773 407	2 074	421	98	112	51	193	2 949	2,7	0,8
VS	335 696	796	157	47	27	20	62	1 109	2,4	0,7
ZG	122 134	343	100	16	19	11	39	528	2,8	1,1
ZH	1 466 424	6 120	1 612	282	204	103	724	9 045	4,2	1,4
FL	37 623	115	3	4	1	–	6	129	3,1	0,2
foreign	–	225	465	12	57	–	55	814	–	–
unknown	–	479	–	7	1	2	31	520	–	–
<b>Total</b>	<b>8 364 749</b>	<b>26 537</b>	<b>7 567</b>	<b>1 266</b>	<b>988</b>	<b>525</b>	<b>2 664</b>	<b>39 547</b>	<b>3,2</b>	<b>1,2</b>
%	–	67,1	19,1	3,2	2,5	1,3	6,7	100	–	–

## Human poisoning

### Children below 5 years of age most frequently involved

The highest number of cases involved children below five years of age (45.7%). Overall, children (56.0%) were more frequently involved in toxic exposures than adults (43.8%). Boys were more frequently represented amongst the children (51.2% vs 47.3%) and women amongst the adults (58.9% vs 40.6%). This distribution has hardly changed in comparison with the previous year.

### Age and gender of human cases with toxic exposure

		Age	female	male	unknown	Total		
<b>Children</b>		8 482	47,3 %	9 189	51,2 %	276	17 947	56,0 %
<b>Age</b>	< 5 years	6 842	80,7 %	7 676	83,5 %	137	14 655	
	5 – < 10 years	741	8,7 %	838	9,1 %	18	1 597	
	10 – < 16 years	630	7,4 %	430	4,7 %	8	1 068	
	unknown	269	3,2 %	245	2,7 %	113	627	
<b>Adults</b>		8 267	58,9 %	5 705	40,6 %	70	14 042	43,8 %
<b>Age</b>	16 – < 20 years	566	6,8 %	321	5,6 %	–	887	
	20 – < 40 years	1 655	20,0 %	1 388	24,3 %	–	3 043	
	40 – < 65 years	1 317	15,9 %	1 042	18,3 %	2	2 361	
	65 – < 80 years	326	3,9 %	242	4,2 %	2	570	
	80+ years	235	2,8 %	127	2,2 %	–	362	
	unknown	4 168	50,4 %	2 585	45,3 %	66	6 819	
<b>unknown</b>		19	25,7 %	11	14,9 %	44	74	0,2 %
<b>Total</b>		<b>16 768</b>	<b>52,3 %</b>	<b>14 905</b>	<b>46,5 %</b>	<b>390</b>	<b>32 063</b>	<b>100 %</b>

# 11

Most toxic exposures are accidental, in other words non-intentional. Small children are mainly involved.

## Accidental poisonings predominate

A distinction must be made between the circumstances of poisoning which can be divided into three categories: accidental (non-intentional) poisonings, intentional poisonings and adverse drug reactions. Accidental poisonings occur at home (private housing and garden), occupational

(workplace) and environmental (caused by human activities, food, drinking water or breathing air). Intentional poisonings are suicides, attempted suicides, drug abuse and criminal poisonings (by third party).

## Circumstances of toxic exposures in humans

Circumstances of toxic exposures		Acute poisoning (exposure ≤8h)		Chronic poisoning (exposure >8h)	
accidental domestic	23 211	72,4 %	531	1,7 %	
accidental occupational	1 071	3,3 %	72	0,2 %	
accidental environmental	14	0,04 %	17	0,05 %	
accidental others	1 530	4,8 %	96	0,3 %	
<b>Total accidental</b>	<b>25 826</b>	<b>80,5 %</b>	<b>716</b>	<b>2,2 %</b>	
intentional suicide	3 164	9,9 %	49	0,2 %	
intentional abuse	532	1,7 %	98	0,3 %	
intentional criminal	66	0,2 %	18	0,06 %	
intentional others	734	2,3 %	140	0,4 %	
<b>Total intentional</b>	<b>4 496</b>	<b>14,0 %</b>	<b>305</b>	<b>1,0 %</b>	
<b>Total accidental and intentional</b>	<b>30 322</b>	<b>94,6 %</b>	<b>1 021</b>	<b>3,2 %</b>	
<b>Total acute and chronic</b>			<b>31 343</b>	<b>97,8 %</b>	
<b>adverse drug reactions</b>			<b>243</b>	<b>0,8 %</b>	
<b>unclassifiable / others</b>			<b>477</b>	<b>1,5 %</b>	
<b>Total</b>			<b>32 063</b>	<b>100 %</b>	

In both groups of toxic exposures it is necessary to distinguish between acute poisoning (exposure ≤ 8 hours) and chronic poisoning (exposure > 8 hours). Repeated single exposures are often

difficult to classify. Other than overdoses and chemical exposures, there are adverse drug reactions in the context of therapeutic administrations of a pharmaceutical.

# 12

## Agents

For analysis, the agents (toxins) involved were split into 12 groups. The distribution has not changed significantly in comparison to the previous year.

A supplement with details to the individual agent groups is available on [www.toxinfo.ch](http://www.toxinfo.ch).

## Frequency of agent groups in all cases of human poisoning

Agents/ Age groups	Adults	Children	Age unknown		Total
Pharmaceuticals	5 826	5 416	9	11 251	35,1 %
Household products	2 640	5 693	22	8 355	26,1 %
Plants	582	2 270	3	2 855	8,9 %
Cosmetics and personal care products	318	1 960	–	2 278	7,1 %
Technical and industrial products	1 561	412	11	1 984	6,2 %
Food and beverages (excl. mushrooms and alcohol)	857	682	9	1 548	4,8 %
Recreational drugs and alcohol	657	448	1	1 106	3,4 %
Agricultural and horticultural products	351	376	1	728	2,3 %
Mushrooms	249	194	3	446	1,4 %
Venomous animals	255	101	2	358	1,1 %
Veterinary drugs	59	49	–	108	0,3 %
other or unknown agents	687	346	13	1 046	3,3 %
<b>Total</b>	<b>14 042</b>	<b>17 947</b>	<b>74</b>	<b>32 063</b>	<b>100 %</b>

### Severity of poisoning

8636 enquiries from physicians (97.8% of all medical enquiries) were related to cases of expected or already established poisoning. In these cases, the treating physicians received a summary of the telephone consultation, together with a request for feedback on the clinical outcome. Tox Info Suisse received a report on the outcome in 73.7% of these cases. Thus Tox Info Suisse receives medically qualified information on symptoms, clinical outcome and treatment of acute and chronic poisonings which is entered and analysed in our in-house database.

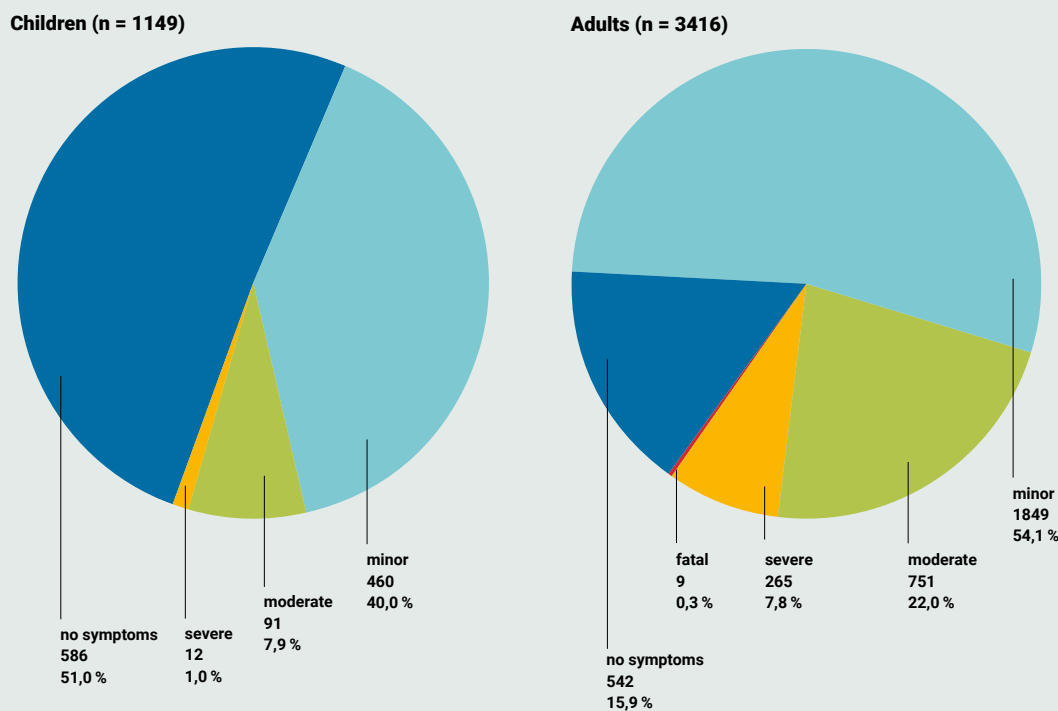
Data capture and evaluation are standardised according to circumstances, causality and severity of poisoning. These cases are categorised as follows: no symptoms, minor, moderate, severe, or fatal. Minor symptoms typically require no treatment, moderate symptoms usually require treatment, and

cases with severe symptoms must invariably be treated.

This annual report only includes poisonings where causality was confirmed or likely. Confirmed means that the toxin has been analytically detected in the body, the time course and symptoms are compatible with the toxin, and the symptoms could not be explained by an underlying illness or any other cause. Likely causality fulfils the same criteria, but the agent has not been detected in the body.

4565 human cases both asymptomatic and symptomatic with sufficient evidence of causality were analysed further with regard to clinical course (+0.95% compared to 2015).

### Clinical outcome of poisoning cases in children and adults



Of the 4565 cases where causality was confirmed or likely, about three fifths involved an ingestion of only one toxin. In two fifths of the cases, two or more agents were involved. These cases have been categorized according to the most important agent involved.

### Frequency of agent groups and severity of human poisoning in cases where medical feedback was received and analysed

Agent groups	Adults					Children					Total	
	N	Mi	Mo	S	F	N	Mi	Mo	S	F		
Pharmaceuticals	374	1 161	417	182	6	325	223	52	6	-	2 746	60,2 %
Household products	41	143	36	5	-	125	111	8	2	-	471	10,3 %
Recreational drugs and alcohol	35	143	157	49	-	22	14	13	-	-	433	9,5 %
Technical and industrial products	37	243	53	15	1	15	32	3	2	-	401	8,8 %
Plants	13	24	16	1	1	29	21	1	1	-	107	2,3 %
Cosmetics and personal care products	14	29	1	-	-	24	29	8	-	-	105	2,3 %
Mushrooms	4	16	20	2	-	17	4	-	-	-	63	1,4 %
Venomous animals	2	15	18	4	-	-	5	3	-	-	47	1,0 %
Agricultural and horticultural products	2	21	5	3	1	10	2	-	-	-	44	1,0 %
Food and beverages (excl. mushrooms and alcohol)	5	15	8	1	-	5	6	2	1	-	43	0,9 %
Veterinary drugs	2	2	-	-	-	5	1	-	-	-	10	0,2 %
other or unknown agents	13	37	20	3	-	9	12	1	-	-	95	2,1 %
<b>Total</b>	<b>542</b>	<b>1 849</b>	<b>751</b>	<b>265</b>	<b>9</b>	<b>586</b>	<b>460</b>	<b>91</b>	<b>12</b>	<b>-</b>	<b>4 565</b>	<b>100 %</b>

Severity of poisoning: N = no symptoms, Mi = minor, Mo = moderate, S = severe, F = fatal

## Animal poisoning

### Animals involved

2003 enquiries relating to 1950 cases concerned a large variety of animals also in 2016: 1380 dogs, 434 cats, 59 equines (horses, ponies, donkeys), 22 bovines (cows, cattle, sheep, goats), 13 rodents (hamsters, rats, squirrel, degu, guinea pigs), 18 lagomorphs (hares, rabbits), 15 birds (chickens, goose), 1 reptile (tortoise), 3 pigs, 1 monkey, 2 alpacas, 1 hedgehog and 1 camel.

### Frequency of agent groups in all cases of animal poisoning

Agent groups		No. of cases
Pharmaceuticals	416	21,3 %
Plants	350	17,9 %
Agricultural and horticultural products	320	16,4 %
Food and beverages (excl. mushrooms and alcohol)	304	15,6 %
Household products	209	10,7 %
Veterinary drugs	87	4,5 %
Technical and industrial products	66	3,4 %
Recreational drugs and alcohol	42	2,2 %
Cosmetics and personal care products	30	1,5 %
Venomous animals	28	1,4 %
Mushrooms	17	0,9 %
other or unknown agents	81	4,2 %
<b>Total</b>	<b>1 950</b>	<b>100 %</b>



### Severity of poisoning

Veterinarians were also asked to submit clinical follow-up reports on animal poisoning. Tox Info Suisse received a total of 405 reports which could be analysed.

### Frequency of agent groups and severity of animal poisoning in cases where medical feedback was received and analysed

Agent groups	Severity of poisoning					Outcome	Total
	N	Mi	Mo	S	F		
Pharmaceuticals	81	28	10	2	–	121	29,9 %
Food and beverages (excl. mushrooms and alcohol)	44	18	5	–	–	67	16,5 %
Agricultural and horticultural products	42	9	8	2	–	61	15,1 %
Plants	20	14	8	1	2	45	11,1 %
Household products	28	6	1	1	–	36	8,9 %
Veterinary drugs	13	8	6	2	2	31	7,7 %
Technical and industrial products	4	5	2	4	2	17	4,2 %
Recreational drugs and alcohol	5	6	2	–	–	13	3,2 %
Venomous animals	–	4	–	2	1	7	1,7 %
Cosmetics and personal care products	2	–	1	–	–	3	0,7 %
Mushrooms	–	–	–	–	–	0	0,0 %
other or unknown agents	4	–	–	–	–	4	1,0 %
<b>Total</b>	<b>243</b>	<b>98</b>	<b>43</b>	<b>14</b>	<b>7</b>	<b>405</b>	<b>100 %</b>

Severity of poisoning: N = no symptoms, Mi = minor, Mo = moderate, S = severe, F = fatal

## Annual financial statement well balanced

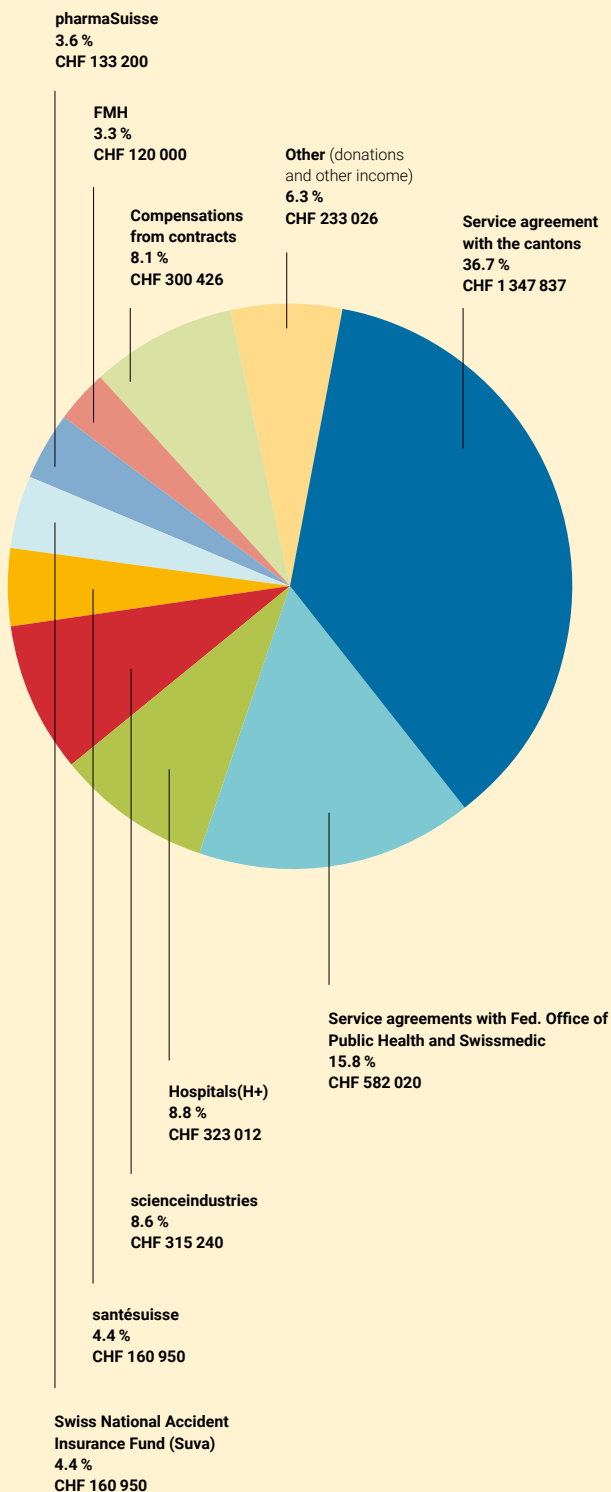
### Income statement 2016

Income	CHF
Contributions from supporting bodies	890 340
Income from contracts	
Federation	582 020
Cantons	1 347 837
others	300 426
Hospitals (H+)	323 012
Honoraria and expert opinions	4 288
Research projects	
Donations	67 901
other income (anniversary)	56 054
Interest and benefits from equity	11 935
Withdrawal from provisions anniversary 2016	92 848
<b>Total income</b>	<b>3 676 661</b>
<b>Expenses</b>	
Staff costs	2 806 127
Facilities	137 821
Furniture and equipment	11 431
IT costs	189 488
Office and administration costs	52 890
Communication	15 026
Literature and archiving costs	12 395
Research and education costs	1 000
Bank charges, interest	558
Telephone, postage, facsimile	38 024
other expenses (anniversary)	148 902
Provision to assure long-term liquidity	160 000
Provision for the year 2016 jubilee	92 848
<b>Total expenses</b>	<b>3 666 510</b>
<b>Net profit</b>	<b>10 151</b>

### Balance 2016

Assets	CHF
Current assets	
cash	3 421 614
trade accounts receivable	354 007
current account EAPCCT	4 601
other short-term receivables	743
prepaid expenses	36 613
<b>Total assets</b>	<b>3 817 578</b>
<b>Liabilities</b>	
Current liabilities	
trade accounts payable	36 457
other short-term payables	56 003
deferred income	317 676
provisions anniversary 2016	138 793
Provisions	
provisions	2 400 807
foundation capital and general reserves	800 400
profit carried forward	57 291
Profit	10 151
<b>Total liabilities</b>	<b>3 817 578</b>

## Source of income



## Auditor's report



To the Council of  
**Foundation Tox Info Suisse**  
Zurich, Switzerland

### Auditor's report on the limited examination

As statutory auditors we have examined the financial statements (balance sheet, income statement and notes) of Foundation Tox Info Suisse for the year ended December 31, 2016.

These financial statements are the responsibility of the board of directors. Our responsibility is to perform a limited statutory examination on these financial statements. We confirm that we meet the licensing and independence requirements as stipulated by Swiss law.

We conducted our examination in accordance with the Swiss Standard on the Limited Examination. This standard requires that we plan and perform a limited examination to identify material misstatements in the financial statements. A limited examination consists primarily of inquiries of company personnel and analytical procedures as well as detailed tests of company documents as considered necessary in the circumstances. However, the testing of operational processes and the internal control system, as well as inquiries and further testing procedures to detect fraud or other legal violations, are not within the scope of this examination.

Based on our limited examination, nothing has come to our attention that causes us to believe that the financial statements do not comply with Swiss law and the rules of the foundation.

Swiss Revision AG

Cornel Baclocher  
Licensed Audit Expert  
Swiss Certified Accountant  
Auditor in Charge

ppa. Matthias Scherrer  
Licensed Audit Expert  
Swiss Certified Accountant

Zurich, May 11, 2017 CB/NB

Swiss Revision AG, Peter Merian-Strasse 54, Postfach, 4002 Basel, Tel. +41 61 205 77 11, Fax +41 61 205 77 19  
Swiss Revision AG, Grabenstrasse 32, 6300 Zug, Tel. +41 41 711 10 60, Fax +41 41 711 10 69  
Swiss Revision AG, Seefeldstrasse 88, 8008 Zurich, Tel. +41 44 382 51 15, Fax +41 44 382 51 16  
info@swiss-revision.ch, www.swiss-revision.ch

## Thanks to all donors!

Tox Info Suisse is a charitable non-profit making private foundation. It is partly funded by donations from companies, organisations and private individuals. The donations are used exclusively to support the poisons information service.

### Donations 2016 of and above CHF 1000

Each contribution to the donation account supports the future of the poisons information service! We thank all donors in advance for their payment to:

PC 80-26074-7 or Credit Suisse:  
IBAN CH24 0483 5018 3570  
3000 0

Online donations can be made on our website.

Mrs Erika Wüthrich	5 000
Henkel & Cie. AG	3 000
Pfizer AG	3 000
Procter & Gamble Switzerland SARL	3 000
The Medical Society of the Canton of Thurgau	3 000
The Swiss Cosmetic and Detergent Association	3 000
Unilever Schweiz GmbH	3 000
Reckitt Benckiser Switzerland AG	2 000
Swiss Dental Association SSO	2 000
The Medical Society of the Canton of Glarus	2 000
Aldi Suisse AG	1 000
Astra Zeneca AG	1 000
Ebi Pharm AG	1 000
IBSA Institut Biochimique SA	1 000
IVF Hartmann AG	1 000
KWZ AG	1 000
M.D. Markus Frey	1 000
Swiss Association of Druggists	1 000
Swiss Revision AG	1 000
Zambon Svizzera SA	1 000

Smaller contributions not listed here are frequent and very welcome.

We extend grateful thanks to all donors.

## Funding increasingly difficult despite rising number of enquiries

The number of telephone consultations given by Tox Info Suisse continued to rise in 2016 as in the past. Although this directly reflects that the services of Tox Info Suisse meet a clear need for advice, funding is becoming increasingly difficult because of ubiquitous cost pressure. Even though the current financing model shows clear advantages, there are repeated feelings of insecurity about the contributions from the supporting bodies.

Networking in areas of public health which become more relevant in the future is crucial for Tox Info Suisse. Such areas include chemical safety, drug safety, suicide prevention, and disaster preparedness and control. Tox Info Suisse is able to contribute significantly in all these fields, and all can bring financial support to the Tox.

### The Tox receives more and more enquiries

The population of Switzerland becoming larger, the constant increase in new toxic hazards and the growing need for information from individuals are all factors causing the ever-increasing number of consultations. Even though general drug safety and chemical safety regulations are tightening, the introduction of new substances and products on the market leads to new risks. Although dangerous products are withdrawn from circulation and replaced with less toxic ones, the number of accidental exposures in people's everyday life as well as the demand for toxicological expertise and advice remain high. The emergency and information service of the Tox is an indispensable part of the Swiss health care system.

### Successful financing model?

Tox Info Suisse, as an independent non-profit institution, is financially supported by the partners of the health care system, who are interested in and profit from the services of an efficient poisons information centre. The initial financing, exclusively through supporting bodies, has been partially replaced with service level agreements over the past 15 years. The advantages of this organisational model are that financing does not come from one single source but various sources, it is therefore more solid, and networking with all the important bodies in health care is inherent in the system. Furthermore, association financing as a whole is significantly more cost-effective as compared to invoicing individual accounts, but this has the disadvantage that consensus and balance between the various partners must always be maintained. In addition, the contributions from the supporting

bodies, which are made provisionally on a year-to-year basis and without formal return compensation, cannot guarantee medium and long-term financial security. Service level agreements help to reduce these drawbacks. Currently, Tox Info Suisse is facing the withdrawal of three major contributions at the same time: due to cutbacks pharmaSuisse and scienceindustries cut their contributions by half at the end of 2016, and the Swiss Medical Association (FMH) has cancelled its contribution altogether. This results in a financing gap of about 270,000 francs, which cannot be offset with savings if contributions remain unchanged. The Foundation Council has been working intensively on this issue. The FMH will be replaced by the Conference of the Cantonal Medical Societies (KKA). No substitute for the remaining loss has been found yet. However, there are other beneficiaries who have not been involved in financing yet and with whom service level agreements must be negotiated. The Foundation Council objects to invoicing individual accounts (caller assumes costs personally) as this entails considerable administrative work and is therefore much more expensive. This also hinders telephone consultations, because the caller's identity and his insurance situation have to be clarified before starting the actual consultation. This is not acceptable for a medical emergency and information service.

## The work of Tox Info Suisse enjoys broad support

Tox Info Suisse is a private foundation. It was established in 1966 and is based on a private-public partnership.

### Supporting bodies



pharmaSuisse is the Swiss pharmacists' Association. It is the founder of the Swiss Toxicological Information Centre in 1966, now Tox Info Suisse.



scienceindustries is the Swiss business association for the chemical, pharmaceutical and biotech industries. It is the co-founder of the Swiss Toxicological Information Centre in 1966, now Tox Info Suisse.



FMH is the Swiss Medical Association.



santésuisse is the inter-trade organisation of Swiss health insurance companies in the domain of social health insurance.



Suva is the biggest institution in the field of compulsory accident insurance in Switzerland.

### Partners



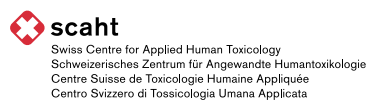
Tox Info Suisse is an Associated Institute of the University of Zurich in the domains of research and education.



Tox Info Suisse is involved with the European Association of Poisons Centres and Clinical Toxicologists ([www.eapcc.org](http://www.eapcc.org)).

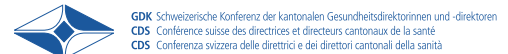


Tox Info Suisse collaborates closely with the Society of Clinical Toxicology (Gesellschaft für Klinische Toxikologie, GfKT) which is the professional society of the German-speaking poisons information centres and of clinical toxicologists.

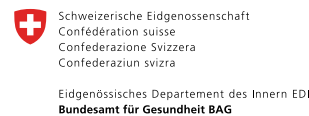


Tox Info Suisse is represented in the foundation council of the SCAHT.

### Service Level Agreements



The services for the general population in Switzerland are regulated by a service level agreement with the Swiss Conference of Cantonal Directors of Public Health (GDK).



By order of the Swiss Federation, and on the basis of the law and ordinance on chemicals, Tox Info Suisse contributes significantly to emergency consultation and poisoning prevention.



H+ is the national central association of public and private hospitals, infirmaries, and nursing homes.

### Swissmedic

By order of the Swiss Agency for Therapeutic Products (Swissmedic) Tox Info Suisse provides toxicovigilance in the domain of pharmaceuticals.



## Individuals committed to Tox Info Suisse

### Foundation Council

**President:** Elisabeth Anderegg-Wirth, pharmaSuisse  
**Vice President:** Marcel Sennhauser, scienceindustries  
**Members:** Prof. Michael Arand, University of Zurich / Dr. Roland Charrière, Federal Office of Public Health / Dominique Jordan, pharmaSuisse / Dr. Martin Kuster, scienceindustries / Marion Matousek, pharmaSuisse / Verena Nold, santésuisse / Dr. Claudia Pletscher, Suva / Dr. Gert Printzen, FMH (bis 31.12.2016) / Regierungsrätin Petra Steimen, GDK / Dr. Samuel Steiner, GDK / Dr. Bernhard Wegmüller, H+ / Dr. Thomas Weiser, scienceindustries  
**Honorary President:** Dr. Dr. h.c. Attilio Nisoli  
**Honorary member:** Dr. Franz Merki

### Management

**Director:** Hugo Kupferschmidt, M.D., EMBA-HSG  
**Head physician and deputy director:** Christine Rauber-Lüthy, M.D.,  
**Senior physicians:** Cornelia Reichert, M.D. / Katharina Hofer, M.D. / Colette Degrandi, M.D.  
**Head of scientific services:** vacant  
**Head Administration:** Elfi Blum

### Staff

**Natascha Anders**, nurse / **Jeanne Antheaume**, M.D. (until 31.10.2016) / **Alexandra Bloch**, dipl. pharm. / **Danièle Chanson**, executive secretary / **Trudy Christian**, secretary / **Katrin Faber**, M.D. / **Joanna Farmakis**, cleaning service / **Andrea Felser**, PhD (since 27.5.2016) / **Joan Fuchs**, M.D. / **Mirjam Gessler**, med. pract. / **Andrea Gretener**, secretary / **Karen Gutscher**, M.D. / **Ines Hämmerling**, M.D. (1.6.–22.8.2016) / **Rose-Marie Hauser**, management secretary / **Theresa Hiltmann**, M.D. / **Jawid Jalal**, med. pract. (since 1.11.2016) / **Noëmi Jöhl**, med. pract. (since 1.11.2016) / **Irene Jost-Lippuner**, M.D. / **Seraina Kägi**, M.D. / **Kirill Karlin**, med. pract. (since 1.9.2016) / **Helen Klingler**, M.D. / **Sandra Koller-Palenzona**, M.D. / **Birgit Krueger**, med. pract. (since 2.8.2016) / **Jacqueline Kupper**, vet.D. / **Saskia Lüde**, PhD / **Nadine Martin**, M.D. (since 15.3.2016) / **Franziska Möhr-Spahr**, secretary / **Daniela Rast**, M.D. (4.1.–30.6.2016) / **Ester Rühli-Wilhelm**, M.D. (until 31.7.2016) / **Katharina Schenk**, M.D. / **Stefanie Schulte-Vels**, med. pract. / **Regina Spirk**, M.D. (1.5.–6.7.2016) / **Joanna Stanczyk Feldges**, M.D. / **Jolanda Tremp**, secretary / **Sonja Tscherry**, nurse / **Margot von Dechend**, M.D. / **Tanja Wimmer**, M.D. (until 31.12.2016) / **Karin Zuber**, secretary. **Medical students:** **Debbie Maurer**, **Mateusz Niedzwiecki**, **Mathilde Spiess**, **Anna Zurfluh**.

### Advisors

Numerous experts from hospitals, institutes, state and federal organisations act as honorary advisers, most notably **Jean-Pierre Lorent** (former Director of the Tox) and **Professor Martin Wilks** M.D., PhD (SCAHT).

## Scientific publications

The list of the scientific publications, doctoral theses and master theses can also be found on the website [www.toxinfo.ch](http://www.toxinfo.ch).

Some of the listed papers can be downloaded from our website [www.toxinfo.ch](http://www.toxinfo.ch). All others are accessible through scientific libraries. Leaflets about first aid and poisoning prevention are also available in German, French and Italian.

**Création du Groupe Suisse de Pharmacogénomique et de Thérapie Personnalisée (SPT).**

Baumann P, Bühlmann RP, Jetter A, Kupferschmidt H, Meier-Abt P, Meyer UA, Ansari M.  
Pipette – Swiss Laboratory Medicine 2016; 3:17–18.

**Risk of seizures associated with antidepressant use in patients with depressive disorder: follow-up study with a nested case-control analysis using the clinical practice research datalink.**

Blöchliger M, Ceschi A, Rüegg S, Kupferschmidt H, Krähenbühl S, Jick SS, Meier CR, Bodmer M.  
Drug Saf 2016; 39: 307–21.

**Acute toxicity associated with the recreational use of the novel psychoactive benzofuran N-methyl-5-(2-aminopropyl)benzofuran.**

Hofer KE, Faber K, Müller DM, Haufler T, Wenger U, Kupferschmidt H, Rauber-Lüthy C.  
Ann Emerg Med 2016 [early online]. (Ann Emerg Med. 2017; 69: 79–82).

**Adverse effects of plant food supplements and plants consumed as food: results from the poisons centres-based PlantLIBRA Study.**

Lüde S, Vecchio S, Sinno-Tellier S, Dopter A, Mustonen H, Vucinic S, Jonsson B, Müller D, Veras Gimenez Fruchtingarten L, Hruby K, De Souza Nascimento E, Di Lorenzo C, Restani P, Kupferschmidt H, Ceschi A.  
Phytother Res 2016; 30: 988–96.

**Medikamente und Haushaltprodukte bleiben Spitzenreiter.**

Lüde S, Degrandi C, Reichert C, Rauber-Lüthy C.  
pharmaJournal 2016; 22: 27–29.

**Long-term monitoring of opioid, sedative and anti-inflammatory drugs in horse hair using a selective and sensitive LC-MS/MS procedure.**

Madry MM, Spycher BS, Kupper J, Fürst A, Baumgartner MR, Krämer T, Nägeli H.  
BMC Vet Res 2016; 12: 84.

**Vigilance for veterinary medicinal products: reports of adverse reactions in the year 2015.**

Müntener CR, Kupper J, Nägeli H, Gassner B.  
Schweiz Arch Tierheilkd 2016; 158: 743–47.

**Bites of venomous snakes in Switzerland.**

Plate A, Kupferschmidt H, Schneemann M.  
Praxis 2016; 105: 679–85.

**Adverse effects of plant food supplements self-reported by consumers in the PlantLIBRA survey involving six European countries.**

Restani P, Di Lorenzo Ch, Garcia-Alvarez A, Badea M, Ceschi A, Egan B, Dima L, Lüde S, Maggi FM, Marculescu A, Milà-Villaruel R, Raats MM, Ribas-Barba L, Uusitalo L, Serra-Majem L.  
PLoS ONE 2016; 11: e0150089.

**Introducing mushroom fruiting patterns from the Swiss national poisons information centre.**

Schenk-Jäger KM, Egli S, Hanimann D, Senn-Irlet B, Kupferschmidt H, Büntgen U.  
PLoS ONE 2016; 11: e0162314.

**No clinically relevant effects in children after accidental ingestion of *Panaeolina foenicicii* (lawn mower's mushroom).**

Schenk-Jaeger KM, Hofer-Lentner KE, Plener B, Eckart D, Haberl B, Schulze G, Borchert-Avalone J, Stedtler U, Pfab R.  
Clin Toxicol 2016 [early online]. (Clin Toxicol 2017; 55: 217–20).

**Pilzvergiftungen 2015.**

Schenk-Jäger KM.  
SZP – Schweiz Zeitschr Pilzkd 2016; 94: 15–18.

**Tox Info Suisse is the proper address for private individuals, professionals, organisations and companies for all questions regarding poisoning.**

**Summary of the most important services:**

- Emergency hotline 145
- Information and advice concerning poisoning for private individuals and medical professionals
- Consultations concerning poisons (theoretical enquiries, tel. +41 44 251 66 66)
- Documentation and treatment schemes
- Consultations and services for companies
- Risk assessment and expert opinion
- Poisoning prevention and toxicovigilance of pharmaceuticals
- Postgraduate education for specialist physicians in clinical pharmacology and toxicology
- Research and education

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**tox** info  
SUISSE

Freiestrasse 16  
8032 Zurich

**EMERGENCY** +41 44 251 51 51

**TEL** +41 44 251 66 66

**FAX** +41 44 252 88 33

**E-MAIL** [info@toxinfo.ch](mailto:info@toxinfo.ch)

**INTERNET** [www.toxinfo.ch](http://www.toxinfo.ch)

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