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CURRENT NOTES

Polonium-210 as a poison

41/0901 The Health Protection Agency's radiation protection experts together with colleagues from research laboratories in the USA have published a paper in the Journal of Radiological Protection on how polonium-210 acts as a poison in the body. Although the unfortunate death of Mr Litvinenko in London last year stimulated this work, the paper does not examine the particular circumstances of his death. Instead the authors review published scientific evidence accumulated over decades about the biological behaviour of polonium-210 and its deleterious effects at high doses, and they estimate how much would have to be consumed to give a lethal dose.

The authors conclude that polonium-210 ingestion of 1-3 GBq or more is likely to lead to death within a few weeks, assuming 10% absorption to blood (0.1 - 0.3 GBq). On reaching the bloodstream, it would be rapidly deposited in major organs and tissues including the liver, kidneys and bone marrow. The intense alpha radiation within these tissues would result in massive destruction of living cells, leading to a rapid decline in health. Anyone receiving such doses would show symptoms of acute radiation sickness syndrome, and death would eventually result from multiple organ failure. Remedial medical treatment strategies are unlikely to be successful once significant amounts of polonium-210 have entered the blood stream and deposited in tissues, within a few hours of ingestion.

This conclusion arises primarily from an expert assessment of available experimental data, supported by human data on the biological behaviour of polonium-210 and on effects of external radiation. There is only limited information on effects of polonium-210 in humans. The data from the Litvinenko case are not currently available because they are part of a criminal investigation.

The paper is available on line at <http://www.iop.org/EJ/abstract/0952-4746/27/1/001>. [Source: HPA Press Statement, 6 March 2007. http://www.hpa.org.uk/hpa/news/articles/press_releases/2007/070306_polonium-210.htm]

Suspected human prion disease – referral and reporting

41/0902 Following advice from the Spongiform Encephalopathy Advisory Committee (SEAC) the Chief Medical Officer for England has written to remind neurologists to remain vigilant and to refer unusual neurological cases through the established national arrangements for referral and reporting of suspected cases of human prion disease (CJD). The letter follows recently reported cases of vCJD infection following blood transfusion and can be accessed at

<http://www.dh.gov.uk/assetRoot/04/14/32/58/04143258.pdf>.

The National CJD Surveillance Unit based in Edinburgh updated guidance on reporting by local clinicians of suspect cases of CJD to local public health departments in November 2006. The document can be viewed in full at <http://www.cjd.ed.ac.uk/guidance.htm>.

EFSA assesses aflatoxin level risks

41/0903 The European Food Safety Authority (EFSA) has published its assessment of the potential health risks to consumers if new, higher levels of aflatoxins were allowed in the European Union for almonds, hazelnuts and pistachios.

EFSA was asked for its opinion to help inform negotiations aimed at setting internationally agreed limits for aflatoxins in these nuts.

Aflatoxins are a group of toxins formed by certain moulds, which may grow on some foods, particularly in tropical and sub-tropical countries, including peanuts, nuts, dried figs and cereals and spices. They have been linked to liver cancer in some parts of the world. In the UK and the rest of the European Union there are legal limits to make sure that people take in as little of them as possible.

The EFSA opinion concludes that increasing the maximum permitted levels of aflatoxins in these three nuts within the proposed range would have only minor effects on the expected total dietary exposure from all sources. It is however essential to keep aflatoxin exposure from food sources as low as possible by reducing exposure from the sources that are major contributors to people's total

Correspondence to:
The Editor,
HPS Weekly Report
HPS,
Clifton House, Clifton Place
Glasgow, G3 7LN
Scotland

T 0141-300 1100
F 0141-300 1172

E wreditor@hps.scot.nhs.uk
<http://www.ewr.hps.scot.nhs.uk/>

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exposure to aflatoxins through their diet, its experts say. [Source: FSA News Release, 2 March 2007. <http://www.food.gov.uk/news/newsarchive/2007/mar/aflatox>]

Influenza vaccine composition - season 2007/2008

41/0904 The World Health Organization has recommended that influenza vaccines to be used in the 2007-2008 season (northern hemisphere winter) contain the following:

- an A/Solomon Islands/3/2006 (H1N1)-like virus;
- an A/Wisconsin/67/2005 (H3N2)-like virus;^a
- a B/Malaysia/2506/2004-like virus

Candidate vaccine viruses include:

- ^a A/Wisconsin/67/2005 (H3N2) and A/Hiroshima/52/2005

A detailed discussion of the context of the recommendations, including recent influenza activity, antigenic characteristics of recent isolates and vaccine studies, is published in the current issue of the *Weekly Epidemiological Record* (<http://www.who.int/wer/2007/wer8209.pdf>).

INFLUENZA TABLE: Reports from GP spotter practices of consultations for flu-like illness, rates per 100,000

WEEK NO.	WEEK ENDING	AA	BR	DG	FF	FV	GG	GR	HG	LN	LO	OR	TY	WI	SCOTLAND
7	18/02/07	28	63	59	5	26	24	14	23	0	56	0	58	8	29
8	25/02/07	9	50	34	13	23	20	6	18	0	13	0	69	21	24
9	04/03/07	0	53	76	0	10	29	14	0	0	5	0	27	23	17

N/R no return

HPA report on scalp ringworm

41/0905 The pattern of *tinea capitis* (scalp ringworm) in the UK has changed in the past ten years with a significant rise in the incidence of cases of infection, mainly due to *Trichophyton tonsurans*. The number of cases of skin infections caused by *T. tonsurans* diagnosed annually at one South London laboratory has increased by more than 40-fold over this period, the overriding majority of these being infections of the scalp. The main focus of this epidemic has been cities. Infection rates show variations with ethnicity but it is clear that infection can occur in any child irrespective of their ethnic origin.

A new report (accessible at http://www.hpa.org.uk/publications/2007/tinea/tinea_capitis_07.pdf) produced by a working group of the HPA Advisory Committee on Fungal Infection describes the epidemiology and deals with the diagnosis and management of tinea capitis. It is a simple concise evidence-based guide aimed at healthcare workers.

Tinea capitis is an infection caused by dermatophyte fungi mainly found in pre-pubertal children. It is an infection of the skin and hair of the scalp generally characterised by local inflammation and hair loss. Infection can range from the asymptomatic to painful inflamed lesions. The main goals of therapy of *tinea capitis* are treatment of the patient and prevention of spread to other children. Although there is currently only one approved drug for tinea capitis in the UK, this report gives the evidence for a range of possible treatment options for cases, carriers and patients with more severe symptoms such as kerions (inflamed lesions). Advice is given on general management to avoid spread including what to do in schools.

Since the clinical signs can vary widely the authors advise that it is unreliable to depend on clinical diagnosis alone and microbiological confirmation should be sought wherever possible. Details on how to take appropriate samples such as scalp scrapings and brushings for the laboratory as well as tests including screening by fluorescence are given.

Little is known about the risk factors for spread. The report recommends improved surveillance of this problem, to understand the specific needs of the ethnic minority communities, who have been the main focus of this infection, and to ensure that methods are in place to control outbreaks of this common childhood condition. [Source: *Health Protection Report*, 2 March 2007. <http://www.hpa.org.uk/hpr/archives/2007/news2007/news0907.htm#ringworm>]

Erratum: Current note 41/0802 The link to the Health Protection Report news item was incorrect. The electronic copy has been amended.

Erratum: Current note 41/0805 Safe disposal of clinical waste omitted the final sentence 'This interim guidance will be superseded by a revised version of SHTN3 Waste Guidance, which will be released later this year'. The electronic copy has been amended.

Gastro-intestinal and foodborne infections

Prepared by Alison Smith-Palmer and Susan Brownlie

Incidence of *Clostridium perfringens*, *Listeria monocytogenes*, *Shigella* and other bacteria in 2006

Clostridium perfringens

While *C. perfringens* is a ubiquitous spore-forming bacillus often found in the gastro-intestinal tract of healthy individuals, reports to HPS of *C. perfringens* toxin in stool samples are presumed to be clinically significant. During 2006, there were four such reports to HPS, this is a decrease of 23 (85%) compared to the previous year when there were 27 such reports. There were no outbreaks of *Clostridium perfringens* reported to HPS during 2006.

Listeria monocytogenes

The importance of *L.monocytogenes* as a gastro-intestinal pathogen arises not from the number of reported cases, which are relatively low compared to many other pathogens, but rather due to the severity of infection and high mortality. In 2006 there were 17 cases of *Listeria monocytogenes* infection reported to HPS, this being a decrease on the 28 isolates of *L.monocytogenes* and four of *Listeria* species reported in 2005. Whilst the decline in cases of *Listeria* in 2006 compared to the previous year is to be welcomed, the low number of isolates reported each year makes the identification of trends based on a single year's data difficult

In 2006, cases were spread across ten of the NHS boards in Scotland. The cases ranged in age from 0 to 84 years, 59% of cases occurring in those aged over 65 years.

HPS is grateful to all the consultants in public health medicine, infection control nurses and microbiologists who have contributed to the improved surveillance of *Listeria* infection in Scotland, the aim of which is to improve our understanding of the incidence of such infection in Scotland.

Shigella

In 2006, 77 isolates of *Shigella sonnei* were reported to HPS, a slight increase on the 71 reported in 2005. Likewise in 2006,

38% of the isolates reported were associated with overseas travel. Provisional information from ObSurv (the surveillance system for all general outbreaks of infectious intestinal disease in Scotland) is that there was one outbreak of *Shigella sonnei* during 2006. Since the establishment of ObSurv in 1996, there have been only four other outbreaks of *Shigella sonnei*.

Forty-three isolates of *Shigella flexneri* were reported in 2006, an increase of 8 (23%) compared to 35 isolates the previous year. In 2006, 49% of cases of *Shigella flexneri* were associated with overseas travel. There were ten isolates of *Shigella boydii* reported in 2006, 50% of which were associated with overseas travel. The incidence in 2006 was similar to 2005 when there were nine isolates reported. There was one isolate of *Shigella dysenteriae* reported in 2006, the same as was reported in 2005. Additionally, in 2006 there were also seven isolates reported as *Shigella* species, this compares to two such reports the previous year.

Aeromonas

There were 134 reports of *Aeromonas* in 2006, very similar to the 135 reports in 2005.

Yersinia

In 2006 there were a total of 26 reports of *Yersinia*, a decrease of 8 on the 34 reports in 2005. In 2006, 22 of these reports were of *Y.enterocolitica*, two of *Y.frederiksenii*, one of *Y.intermedia* and one of *Yersinia* species.

Scombrototoxin

Scombrototoxin poisoning is principally associated with the Scombridae family of fish, including tuna. Poisoning results from the action of spoilage bacteria such as *Proteus* spp and *Klebsiella* spp on the amino acid histidine and related compounds in the fish, producing a complex mixture of compounds which are responsible for scombrototoxin poisoning. No such outbreaks were reported in 2006 (a total of four have been reported since 1996).

TABLE 1: Common gastro-intestinal infections, Scotland: laboratory reports, weeks 2007/1-8

Organism	Number of reports				Total for period 07/05-08	Cumulative total to:	
	07/05	07/06	07/07	07/08		07/08	06/08
<i>Campylobacter</i>	52	66	75	53	246	424	479
<i>E.coli</i> O157	1	2	2	0	5	8	12
<i>Shigella sonnei</i>	4	1	6	2	13	21	6
Rotavirus	8	23	12	10	53	77	103
Norovirus	52	35	34	26	147	281	450
<i>Cryptosporidium</i>	9	23	3	4	39	63	45
<i>Giardia</i>	3	5	2	2	12	22	21

TABLE 2: *Salmonella* infections (excl. *S. Typhi* & *S. Paratyphi*), Scotland: laboratory reports, weeks 2007/1-8

Salmonellas	Number of reports				Total for period 07/05-08	Cumulative total to:	
	07/05	07/06	07/07	07/08		07/08	06/08
<i>S. Enteritidis</i> PT4	3	0	1	1	5	8	4
<i>S. Enteritidis</i> (other PTs)	5	2	2	2	11	30	23
<i>S. Typhimurium</i> DT104	1	0	0	0	1	5	3
<i>S. Typhimurium</i> (other PTs)	4	7	1	4	16	24	13
Other <i>Salmonellas</i>	8	7	10	6	31	54	32
Total excl (<i>S. Typhi</i> & <i>S. Paratyphi</i>)	21	16	14	13	64	121	75

TABLE 3: Viral gastro-enteritis and hepatitis A, Scotland: laboratory reports, weeks 2007/1-8

Organism	Number of reports				Total for period 07/05-08	Cumulative total to:	
	07/05	07/06	07/07	07/08		07/08	06/08
Adenovirus	25	30	13	12	80	149	186
Sapovirus	0	1	0	0	1	2	2
Astrovirus	0	2	0	1	3	7	4
Hepatitis A	0	0	1	0	1	5	4

TABLE 4: Other gastro-intestinal infections, Scotland: laboratory reports, weeks 2007/1-8

Organism	Number of reports				Total for period 07/05-08	Cumulative total to:	
	07/05	07/06	07/07	07/08		07/08	06/08
<i>Yersinia</i>	0	2	1	0	3	4	3
<i>Aeromonas</i>	3	0	2	0	5	12	14

The last Gastro-intestinal and Foodborne infections Surveillance Report was in Issue 07/05
The next Gastro-intestinal and Foodborne infections Surveillance Report will be in Issue 07/13

Statutory Notification of Infectious Diseases

Week ended 23 February 2007

An ISD Scotland National Statistics release

Infectious Disease	Age Group																			
	All ages		Under 1		1 - 4		5 - 14		15 - 24		25 - 34		35 - 44		45 - 64		65 & over		Not known	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
Anthrax	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacillary dysentery	1	3	-	-	-	-	-	-	-	1	-	-	-	-	1	-	2	-	-	-
Chickenpox	256	248	18	23	148	147	55	48	8	5	10	4	6	5	1	1	3	-	7	15
Cholera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diphtheria	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erysipelas	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-
Food poisoning	45	32	1	2	2	2	2	2	5	4	5	4	9	3	15	6	6	9	-	-
Legionellosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Leptospirosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lyme Disease	1	1	-	-	-	-	-	-	-	-	-	-	-	-	1	-	1	-	-	-
Malaria	1	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-
Measles	1	2	-	-	-	2	1	1	-	-	-	-	-	-	-	-	-	-	-	-
Meningococcal infection	4	2	2	-	2	1	-	-	-	-	-	-	-	-	-	-	1	-	-	-
Mumps	46	46	1	-	1	1	4	1	31	30	2	7	4	3	2	4	1	-	-	-
Paratyphoid fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plague	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poliomyelitis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Puerperal fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rabies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Relapsing fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubella	2	1	-	-	1	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Scarlet fever	4	4	1	-	3	1	-	3	-	-	-	-	-	-	-	-	-	-	-	-
Smallpox	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetanus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toxoplasmosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tuberculosis: resp.	2	1	-	-	-	-	-	-	-	1	-	-	-	-	-	-	1	1	-	-
Tuberculosis: non-resp.	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Typhoid fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Typhus fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Viral haemorrhagic fevers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Viral hepatitis	15	8	-	-	-	-	1	-	3	1	5	4	4	2	2	1	-	-	-	-
Whooping cough	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-
TOTAL	380	348	23	25	157	155	64	54	47	40	25	19	24	13	21	14	12	13	7	15

Infectious Disease	NHS BOARD AREA															Current week	Previous week	Current week last year	Total from 1st week of year	
	AC	AA	BR	DG	FF	FV	GR	GG	HG	LN	LO	OR	SH	TY	WI				2006	2007
Anthrax	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Bacillary dysentery	-	-	-	-	-	-	-	1	-	-	1	-	-	2	-	4	-	3	11	27
Chickenpox	-	44	-	17	79	13	88	71	56	34	70	-	4	28	-	504	376	268	2 273	3 985
Cholera	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Continued fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Diphtheria	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Erysipelas	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	1	-	-	3	3
Food poisoning	-	5	4	6	6	2	9	15	7	7	11	-	-	5	-	77	81	85	673	678
Legionellosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Leptospirosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lyme Disease	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	2	1	-	9	11
Malaria	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	-	-	1
Measles	-	-	-	-	-	1	-	-	-	2	-	-	-	-	-	3	5	3	20	23
Meningococcal infection	-	-	-	-	-	-	1	2	-	1	2	-	-	-	-	6	4	2	30	39
Mumps	-	26	-	-	3	5	-	31	-	13	9	-	-	5	-	92	130	102	633	695
Paratyphoid fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Plague	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Poliomyelitis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Puerperal fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rabies	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Relapsing fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubella	-	-	-	-	-	1	-	-	-	2	-	-	-	-	-	3	4	1	11	21
Scarlet fever	-	-	-	-	2	-	-	1	-	2	2	-	-	1	-	8	7	11	55	53
Smallpox	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Tetanus	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Toxoplasmosis	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-
Tuberculosis : resp.	-	-	-	-	1	-	1	2	-	-	-	-	-	-	-	4	1	5	31	33
Tuberculosis : non-resp.	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1	-	3	17	11
Typhoid fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-	2
Typhus fever	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Viral haemorrhagic fevers	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Viral hepatitis	-	-	-	1	6	-	6	-	-	4	1	-	-	5	-	23	15	21	177	129
Whooping cough	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	1	3	-	13	10
TOTAL	-	75	4	24	97	22	107	123	65	66	97	-	4	46	-	730	628	504	3 958	5 722

Amendments: None

Source: Information and Statistics Division, National Services Scotland

NHS BOARD ABBREVIATIONS

AC Argyll & Clyde
AA Ayrshire & Arran
BR BordersDG Dumfries & Galloway
FF Fife
FV Forth ValleyGG Greater Glasgow
GR Grampian
HG HighlandLN Lanarkshire
LO Lothian
OR OrkneySH Shetland
TY Tayside
WI Western Isles