

**Ministry of Health
and Long-Term Care**

Chief Medical Officer of Health

Public Health Division
21st Floor, 393 University Avenue
Toronto ON M7A 2S1

Telephone: (416) 212-3831
Facsimile: (416) 325-8412

**Ministère de la Santé
et des Soins de longue durée**

Médecin hygiéniste en chef

Division de la santé publique
393 avenue University, 21^e étage
Toronto ON M7A 2S1

Téléphone: (416) 212-3831
Télécopieur: (416) 325-8412

June 17, 2015

MEMORANDUM

TO: Medical officers of health, health sector employers and health care workers
RE: 2,4-dinitrophenol DNP consumption

On June 2, 2015, the World Health Organization (WHO) issued a warning as a result of a recent report of a death in the United Kingdom following the use of a product containing 2,4-dinitrophenol (DNP). The chemical 2,4-dinitrophenol is sold over the Internet as a slimming aid for body builders and dieters, including those who are suffering from eating disorders or body dysmorphia. The unlicensed use of DNP as a weight loss drug has caused cases of severe illness and deaths in multiple countries in the last two to three years.

DNP increases metabolic rate by uncoupling oxidative phosphorylation and induces weight loss, leading to its use as a slimming drug. It was widely used for weight loss during the 1930s but reports of cataracts and other adverse effects led to it being banned for this purpose. While DNP is not a licensed drug, it is still widely sold over the Internet under a variety of names. Websites often refer to the chemical as a 'fat burner' and market it in capsule form, implying its suitability for human consumption, even if the same website also publishes a disclaimer about the dangers of ingesting this chemical. Websites targeted towards body builders and dieters typically recommend "cycling" the use of medication for short periods of time. A typical regimen suggests a gradually increasing dose over several days, up to a maximum of 400mg daily for two weeks duration. DNP may be combined with anabolic steroids or thyroxine by some users.

The appearance of DNP varies between suppliers. It is sold as a yellow powder or crystals, in capsules, and as a cream. Typical quantities of DNP contained in capsules are 100 to 250 mg, and some websites sell the powder in bulk. The fact that a product contains DNP will not always be mentioned on the website or product label.

Toxicity

Adverse effects reported from chronic use include peripheral neuritis particularly affecting the hands, gastroenteritis and anorexia, agranulocytosis and neutropenia, cataracts, permanent deafness and yellow discolouration of the skin, sclera and urine.

Acute toxic effects include confusion, agitation, coma, convulsions, hyperthermia, tachycardia, sweating and tachypnea and cardiovascular collapse. Hyperthermia may be severe and life-threatening, and body temperatures exceeding 40° C have been reported. Changes found at post-mortem include heart muscle damage and acute tubular necrosis. Toxicity leading to death has occurred at doses as low as 2.3 g total ingestion, spread over several days.

Treatment

All patients with acute ingestions should be treated as critically ill. There is no antidote for poisoning with DNP and management involves symptomatic and supportive care with particular attention to aggressive control of hyperthermia and possible complications and support of hemodynamics. For detailed management advice, contact the Ontario Poison Centre at 1-800-268-9017.

The Ministry of Health and Long-Term Care is requesting notification of cases of adverse effects related to the use of DNP to local public health units.

Health sector employers and health care workers may contact the ministry's Health Care Provider Hotline by email at emergencymanagement.moh@ontario.ca or by phone at 1-866-212-2272 with questions or concerns about DNP consumption.

Original signed by

David L. Mowat, MBChB, MPH, FRCPC
Interim Chief Medical Officer of Health