Communicable Diseases Communiqué

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Measles outbreak

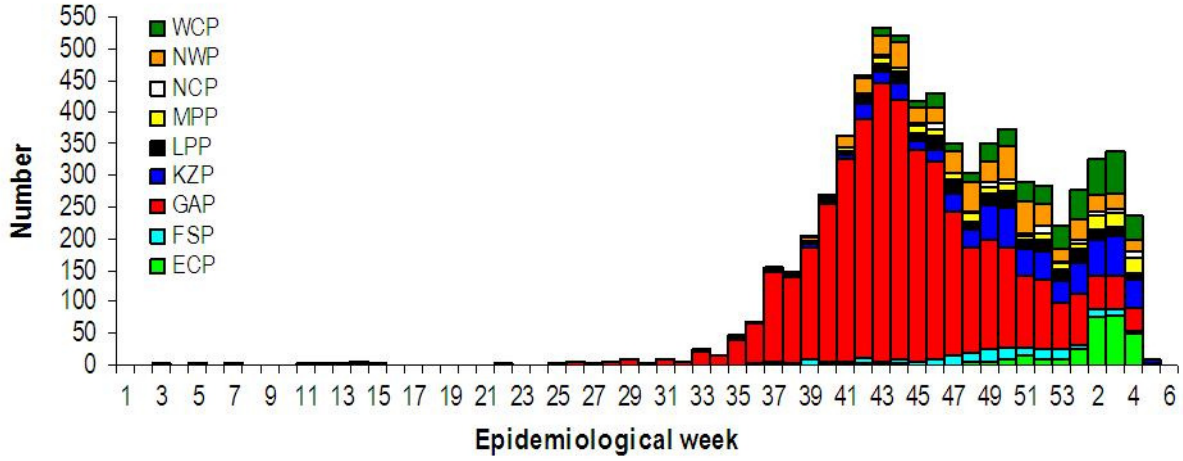
There have been 1,440 additional laboratory-confirmed measles cases since the last published Communiqué, bringing the total to 7, 099 cases from the beginning of 2009 to 9 February 2010. Cases have been reported from all 9 provinces, with Gauteng (61%, 4,359/7,099), KwaZulu-Natal (9%, 631/7,099) and North West (8%, 563/7,099) Provinces accounting for the highest proportions of the total. Children aged 6 to 11 months account for 25% (1, 707/6,863) of cases. An increase in the number of new cases reported each week has been observed in some provinces, notably the Eastern Cape and Western Cape, while Gauteng experienced a decline in the number of cases reported per week (Figure).

The National Department of Health is planning a mass vaccination campaign for polio and measles immunization; this will be accompanied by vitamin A and albendazole administration. The first round of the campaign is scheduled for 12-23 April 2010 (polio first dose, measles) and the second round for 24-28 May 2010 (polio second dose, vitamin A, and albendazole). The target age group for polio is children below five years (two doses, 4 weeks apart); for measles, children aged nine months to <15 years (one dose during first round only); and for vitamin A plus albendazole, children aged 12-59 months (second round).

The continued detection of measles cases from all provinces of South Africa indicates that there remains a substantial immunity gap, with large numbers of susceptible persons vulnerable to infection. Mass campaigns aim to rapidly increase population immunity through widespread vaccination of all eligible individuals over a short period of time. It is essential that high coverage be achieved in the planned mass campaign to enable us to successfully interrupt measles transmission, especially in provinces where the outbreak is not yet widespread. Health care providers should make every effort to support the mass campaign in their districts.

Source: Divisions of Epidemiology and Virology, NICD; Communicable Diseases Control Directorate, National Department of Health

Figure: Epidemic curve showing the number of measles IgM positive cases by province : South Africa 1 January 2009 to 9 February 2010



Enteroviral meningitis outbreak

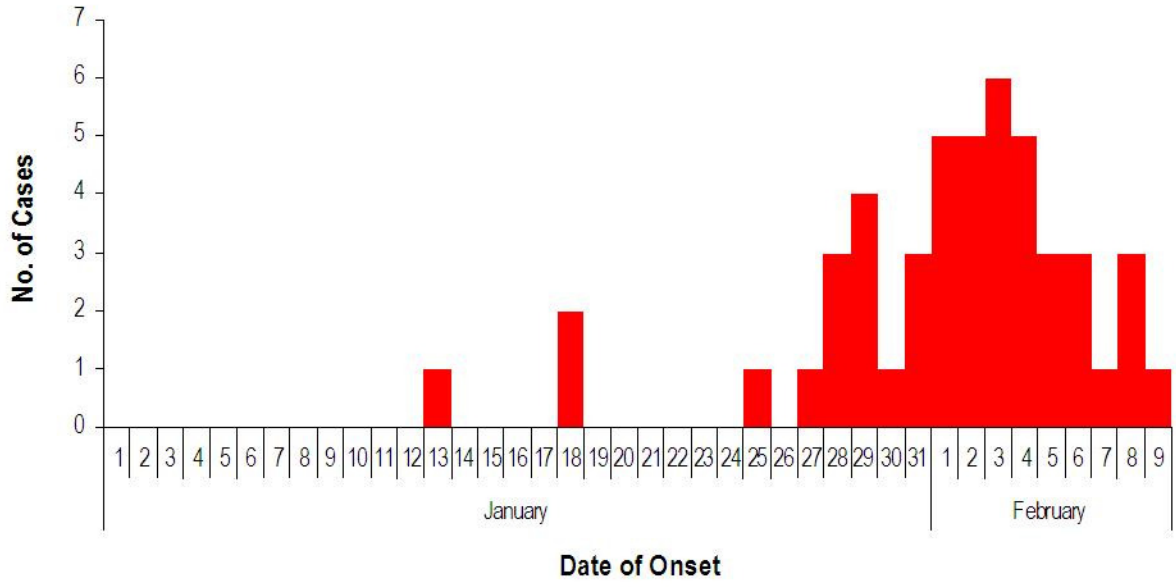
On 1 February 2010, the NICD was requested to support an investigation of a suspected viral meningitis outbreak in Prieska, Northern Cape Province. SA-FELTP assisted the Northern Cape Provincial Department of Health (NCDoH) in the investigation and reporting of this outbreak. Passive case-finding revealed 51 cases (as of 9 February 2010). Early presumptions of a viral meningitis outbreak were based on common clinical symptoms experienced, including headache (n=41, 80 %), fever (n=28, 55%) and neck stiffness (n=16, 50%). The median age of cases was 7.5 years (range 2 to 51 years). Cases <5 years accounted for the highest proportion (n=18, 35%), and the majority were male (n=31, 61%). The earliest reported date of onset of symptoms was 13 January 2010. The epidemic curve is suggestive of a propagated outbreak peaking on 3 February 2010 (Figure).

Cerebrospinal fluid (CSF) and/or throat swab specimens were submitted for the first 25 cases. Microscopy and Gram-stain showed no abnormalities, and chemistry revealed lymphocyte predominance in 8/13 (61,5 %) CSF specimens tested. Further testing was done at the Specialized Molecular Diagnostic Unit (SMDU, NICD). Enterovirus was detected in 10/11 (91%) CSF and 6/6 (100%) throat swab specimens tested; characterization of the enterovirus is currently under way. Further analysis is also being carried out on data gathered from in-depth interviews conducted among nine patients to identify a possible source of the outbreak. Preliminary results revealed four (44%) of these respondents attended the same primary school. All of the patients have since made a full recovery without complications.

An outbreak of 17 cases of echovirus 13 (an enterovirus) was identified in Western Cape Province in November 2009. Enterovirus infections may be associated with a wide range of clinical syndromes, including: asymptomatic infection (majority of cases), aseptic meningitis, encephalitis, myocarditis, myositis, acute haemorrhagic conjunctivitis, herpangina, hand-foot-and-mouth disease, and respiratory infections. The virus is transmitted primarily by faecal-oral contamination and less commonly by respiratory secretions. Prevention is focused on improving sanitation and hygiene. The health promotion staff from the NCDoH were requested to provide basic hand hygiene education to children from the affected schools.

Source: SA-FELTP, Outbreak Response and Specialized Molecular Diagnostic Units NICD; Communicable Disease Control Unit, Northern Cape Province

Figure: Epidemic curve illustrating the number of enterovirus cases by date of onset, Prieska, Northern Cape Province, 13 January to 9 February 2010 (n=51)



Pandemic influenza A(H1N1) 2009

As of 12 February 2010, a total of 12,640 laboratory-confirmed pandemic influenza A(H1N1) 2009 cases and 93 deaths has been identified since the introduction of the novel strain in April 2009. The additional 5 cases confirmed since the last report have all been associated with international travel, or contact with a visitor that recently travelled.

Recently (5 February 2010), the World Health Organization (WHO) reported that since the onset of the pandemic, more than 211 countries have had laboratory-confirmed cases, with at least 15,174 deaths globally. In the temperate zone of the northern hemisphere, pandemic H1N1 activity continues to decline or remain low following a peak in October-November 2009. Active transmission is still being reported in North Africa and limited areas of Eastern Europe, South and Southeast Asia; however, activity within these areas is also declining. In the temperate zone of the southern hemisphere, sporadic cases of pandemic H1N1 continue to be reported without evidence of sustained community transmission.

Pandemic influenza A(H1N1) 2009 is expected to be the predominant strain during the 2010 influenza season. Plans for a vaccination campaign are underway following the procurement of 1.3 million doses of vaccine by the Department of Health. The procured vaccine will protect against 3 strains of influenza that are expected to circulate, namely:

- Pandemic influenza ("swine flu"), an A/California/7/2009 (H1H1)-like virus;
- Influenza A(H3N2), an A/Perth/16/2009 (H3N2)-like virus; and
- Influenza B, a B/Brisbane/60/2008-like virus

The campaign is expected to occur in two rounds. The first round, starting 15 March, will target front-line healthcare workers (i.e. doctors, nurses, and EMS personnel in casualty units and 24-hour centres) and ICU staff, as well as HIV-infected children <15 years who attend HIV clinics. Pregnant women attending antenatal clinics, and patients attending specialist tertiary care lung and cardiac clinics, will be targeted in the second round from 12 April to 31 May. The donation of additional monovalent vaccine (against pandemic H1N1) will assist in strengthening the campaign and expand coverage to further reach population groups at risk for severe disease.

The aforementioned trivalent vaccine will also be available for commercial purchase within the private sector. Vaccination of all high risk individuals (groups as per previous seasons) should be widely encouraged to prevent severe disease. It is also important that all facets of the health sector begin to prepare for the 2010 influenza season and the vaccination campaign.

Source: NHLS: Epidemiology and Virology Divisions, NICD; Tygerberg Hospital; Groote Schuur Hospital; Universitas Hospital; Steve Biko Academic Hospital; Inkosi Albert Luthuli Central Hospital. Private laboratories: Ampath, Lancet, PathCare and Vermaak laboratories. Elective medical students, University of Stellenbosch.

Rabies update

A total of 3 human rabies cases in South Africa has been laboratory-confirmed for 2010 to date. These cases originate from KwaZulu-Natal (n=1) and Limpopo (n=2) Provinces. Since the outbreak of dog rabies in Limpopo in 2005, this province has reported numerous cases of human rabies annually. During the peak of the outbreak in 2006, a total of 22 cases was confirmed; 3 cases in 2007, one case in 2008 and 2 cases in 2009 were laboratory-confirmed.

Rabies disease is invariably fatal, but can be prevented by timeous post-exposure prophylaxis (PEP) given according to recognised protocols (WHO Expert Consultation on rabies, first report 2005, www.who.int). Failure of PEP is invariably due to non-adherence to the protocols. Recently, a 65-year-old lady experienced a category 3 exposure from a stray dog in the Pietermaritzburg area, and sustained multiple wounds including injury to the lip and scalp (which are high risk areas). The wounds were cleaned – a very simple but important component of rabies PEP (cleaning with soap and copious amount of water is recommended). The animal was euthanased and rabies was confirmed

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shortly thereafter. On the day following the exposure, the patient received the first dose of rabies vaccine into the deltoid muscle, but the rabies immunoglobulin (RIG) was administered into the buttocks. Absorption from fatty tissue is unreliable and current recommendations are to infiltrate as much RIG as possible into and around the wound/s (without the use of local anaesthetic) to allow for local neutralization of rabies virus. Any remaining volume of RIG should be given into the deltoid muscle opposite to the one used for the first vaccine. When RIG is not immediately available, it may still be given up to 7 days after the administration of the first dose of vaccine but not thereafter. In consultation with experts in the field it was decided to provide a second dose of RIG into the wounds and deltoid. This administration was done on day 4 following the first vaccine (day 5 after the exposure).

Source: Special Pathogens and Outbreak Response Units, NICD

Viral haemorrhagic fevers

A total of 3 Crimean-Congo haemorrhagic fever (CCHF) cases was confirmed for South Africa for 2009, with cases reported from Northern Cape (n=1), Western Cape (n=1) and Free State (n=1) Provinces. Informal reports of increased tick populations attributed to a good rainfall season in much of South Africa may be an indicator of increased risk of CCHF exposure.

No additional human cases of Rift Valley fever have been confirmed since last reporting. A total of 7 cases has been confirmed in South Africa for 2009, with 5 cases confirmed from KwaZulu-Natal and 2 cases from Northern Cape Provinces.

Laboratory-confirmed Rift Valley fever (RVF) cases in sheep have been reported from two farms in the Bultfontein area (Free State Province). Investigations are underway, but no associated human RVF cases have been identified as yet.

Rift Valley fever (RVF) virus is a mosquito-borne disease which causes large epizootics among ruminant animals (e.g. cattle, buffalo, sheep, goats, and camels), with high rates of mortality and abortions among affected animals as well as significant economic losses. The virus may be transmitted to humans by direct/indirect contact with the blood or organs of infected animals, or less commonly through bites of infected mosquitoes. Infection usually results in an asymptomatic infection or mild disease characterised by fever, muscle and joint pain, and headaches. In rare instances complications such as retinitis, meningoencephalitis, hepatitis or haemorrhagic fever may occur. Interventions to control and prevent outbreaks primarily include: vaccination of livestock, education of high-risk groups (incl. veterinarians and farmers) to take precautionary measures against infection (including the use of personal protective equipment), and/or vector control.

Source: Special Pathogens and Outbreak Response Units, NICD; Directorate: Animal Health, Department of Agriculture, Forestry and Fisheries

Diphtheria

A case of diphtheria in an adult patient was diagnosed this month in Cape Town. Distinguishing features included an ulcerative pharyngitis, myocarditis and pneumonia complicated by shock, acute renal failure and later nosocomial sepsis in ICU with a fatal outcome. A 22-year-old woman from Bonteheuwel (Cape Town) who was previously healthy (apart from occasional amphetamine abuse), presented to Somerset Hospital on the 31st January 2010 with a one week history of sore throat, rigors and cough productive of yellow sputum. A past immunization history was not elicited and she tested negative for HIV. She was assessed as having a severe tonsillitis, then started on intravenous penicillin and metronidazole and immediately referred to the ENT specialists at Groote Schuur Hospital.

Subsequently a diagnosis of ulcerative pharyngitis was made. A pharyngeal membrane was not observed during the examination. Two throat swabs were taken on 1st February, and culture for *C. diph-*

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theriae was requested on one of them. The following day she was referred to internal medicine service for the management of a community-acquired lobar pneumonia and intravenous clarithromycin and co-amoxyclavulanic acid was commenced.

The CXR showed multilobar involvement with predominant right lower and middle lobe consolidation. She deteriorated rapidly throughout the day and required intubation and ventilation and was admitted with shock and acute renal failure to ICU. The succeeding CXR showed a bilateral infiltrate which cleared rapidly following diuresis, strongly suggestive of pulmonary oedema. The ECG had abnormal repolarisation changes and the clinical presentation was compatible with myocarditis.

A very scanty growth of small Gram-positive bacilli was observed after 48 hours incubation. Initial confirmatory tests were inconclusive, but repeat testing (using a BBL Crystal) confirmed the isolate to be *C. diphtheriae.* These results were first available on day 6 of her admission to ICU. At that stage, she had shown a response to supportive care, careful fluid management and antibiotic therapy. However she subsequently developed nosocomial sepsis and had a fatal cardiac arrhythmia on day 8 of her ICU admission. The day prior to her death, a blood culture was taken from which a multi-drug resistant *Klebsiella pneumoniae* was subsequently isolated.

Testing of the *C. diphtheriae* isolate for toxin production using the ELEK test was initially negative, but on repeat testing was positive. Greenpoint NHLS is currently the only laboratory in the country offering the ELEK test.

The public health authorities were notified and contact and droplet precautions were put in place. Follow-up nose- and throat-swab cultures of the patient were negative for diphtheria. It was found that a total of 33 healthcare workers were significantly exposed. They were vaccinated, had throat- and nose-swabs taken and were given a macrolide as prophylaxis. No secondary cases have occurred to date. One doctor developed a sore throat and cervical adenopathy 4 days after exposure and cultures are still awaited.

It was felt that at the time of making the diagnosis of diphtheria, the primary infection had been adequately treated and administration of antitoxin would be too late to be of benefit. Diphtheria antitoxin (DAT) has a narrow therapeutic window as toxin must be neutralized prior to receptor binding and hence is of use early in the course of the disease. Many countries do not hold antitoxin stockpiles as the prevalence of the disease is low and supplies globally are dwindling. South Africa does not stockpile DAT at present.

Reference:

1. Wagner K.S, Stickings P, White J.M, et al. A review of the international issues surrounding the availability and demand for diphtheria antitoxin for therapeutic use. Vaccine. 2010;28:14-19.

Source: NHLS , Division of Infectious Diseases and HIV, Groote Schuur Hospital and University of Cape Town; Outbreak Response Unit, NICD

Legionnaires' disease

The European Working Group for Legionella Infections (EWGLINET) reported a cluster of two travel-associated cases of Legionnaires' disease, possibly associated with visiting a golf resort in Western Cape Province. The first case occurred in November 2008, and the second in December 2009. In both cases, the patients became ill on return to Europe, presenting with pneumonia subsequently diagnosed as Legionnaires' disease by urinary antigen detection *(Legionella pneumophila* serogroup 1).

A collaborative risk assessment and environmental investigation was carried out by teams from the NHLS Infection Control Services Laboratory, the NICD and Environmental Health Practitioners from Eden District Municipality. Control measures are

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currently in progress, and the hotel remains open.

Legionella pneumophila is increasingly recognised worldwide as a significant cause of sporadic and epidemic community-acquired and nosocomially-acquired pneumonia. It is likely under-recognised in South Africa, owing to both lack of clinical suspicion by healthcare practitioners as well as diagnostic difficulties. Legionnaires' disease presents as an 'atypical' pneumonia, and is most often diagnosed by urinary antigen testing, since culture may be difficult and the clinical utility of serologic diagnosis is limited. Legionella spp are ubiquitous in virtually all sources of fresh water, including natural sources as well as man-made water systems; infection occurs through inhalation of contaminated aerosols. Recognised potential sources of travel-associated infection include hot and cold water systems, cooling towers and evaporative condensers, spa pools/ natural pools/thermal springs, fountains/sprinklers, humidifiers for food display cabinets and respiratory therapy equipment. Recognised risk factors associated with infection include older age (>50 years), male gender, having a chronic underlying disease with or without an associated immunodeficiency, and being a heavy smoker. Azithromycin or the fluoroquinolones levofloxacin/moxifloxacin are recommended for treating Legionnaires' disease.

Source: Outbreak Response Unit, NICD; NHLS Infection Control Services Laboratory; Eden District Municipality Environmental Health Practitioners.

2010 FIFA World Cup

South Africa will be hosting the first ever FIFA Soccer World Cup to be held on African soil. Approximately 350 000 people are expected to arrive in June, in addition to those who will arrive earlier for preparations. The event will take place from the 11th June – 11th July 2010. Host cities for official matches are Bloemfontein, Cape Town, Durban, Johannesburg, Nelspruit, Polokwane, Port Elizabeth, Pretoria and Rustenburg.

Mass gatherings such as the FIFA World Cup pose significant challenges for the healthcare system in a host country. Diseases can be caused by conditions endemic to the country or those imported by visitors. Anticipated health risks in South Africa during the FIFA World Cup include: pandemic influenza, measles, HIV and other sexually transmitted infections, malaria, rabies, tick-bite fever, diarrhoeal diseases and communicable diseases related to trauma. Awareness of the potential use of biological agents for terrorism during mass gatherings is also important.

The 2010 FIFA World Cup will be staged during the winter influenza season in South Africa. Influenza A (H1N1), the pandemic strain, is expected to cause the majority of infections in 2010. The influenza trivalent vaccine will be available in the country from March 2010. The National Department of Health will be providing immunizations, prioritizing high risk groups. In light of the ongoing measles outbreak, immunization for measles should also be considered for visitors and local people not previously immunized or immune from previous measles disease.

Winter months are low risk for malaria transmission and prophylaxis is only recommended to those who will be traveling to neighbouring countries, Mozambique in particular. Prophylaxis should be coupled with personal protective clothing and DEET-containing insect repellent.

Officials in South Africa have organized an emergency response system to cope with medical problems faced by visitors to the event. This includes fully equipped first-aid stations at match and training venues, fan parks, and within the respective cities. There are a large number of hospitals that have been designated for services. Measures to combat food-borne diseases include emergency services surveillance and public health monitoring of restaurants, hotels and informal food vendors.

Source: Outbreak Response Unit, NICD; School of Public Health, Witwatersrand

Beyond Our Borders: infectious disease risks for travellers

The "Beyond Our Borders" column focuses on selected and current international diseases that may affect South Africans travelling abroad.

Disease & Countries	Comments	Advice to travellers
Cholera: Africa: Angola, Benin, Kenya, Nigeria, Tanzania, Zambia, Zimbabwe Asia: Cambodia, Papua New Guinea, Thailand, Viet Nam	Outbreaks of cholera have been confirmed in countries within Southern, East and West Africa. Recently, a suspect case was detected in Beitbridge (Zimbabwe), on the South African border. Health facilities in Limpopo Province have been placed on alert. Large outbreaks have also been reported in Southeast Asia. Clinicians should suspect cholera in any individual presenting with acute watery diarrhoea, or when adults present with clinical signs of dehydration.	Cholera is transmitted through the faecal-oral route, and primarily through contaminated water. Travellers are urged to take precautions when consuming food and water‡, utilise water purification tablets where needed, and practice good hand hygiene. Vaccine is not routinely recommended for travellers.
Legionnaires' disease: Germany	There is an outbreak of Legionnaires' disease in the cities of Ulm and Neu-Ulm, Germany. From December 2009 to 22 January 2010, 65 cases with 5 deaths had been reported. The source of the outbreak is unknown at this stage.	If travellers to the area develop symptoms, they are advised to seek immediate medical attention and inform the attending clinician of the outbreak.
Leishmaniasis Tropics, subtropics, southern Europe; Brazil, Argentina	Brazil is reporting an increase in incidence of leishmaniasis in Ipanema (Minas Gerais), an area previously not considered at high risk, with 6 reported cases as at 11 February 2010. An increase in canine leishmaniasis has been reported in Argentina, prompting fears of infection among the local population.	Leishmaniasis is a parasitic disease, which is transmitted by the bite of infected sandflies. Disease presents as cutaneous or visceral leishmaniasis, depending on the geographic location and species. Travellers are advised to take precautions to avoid bites†.

†Vector-borne transmission by mosquitoes. Travellers should take precautionary measures to avoid bites: use insect repellents (containing 30-50% DEET), wear light-coloured clothing, and use insecticide-treated bed nets.
‡Prevention of food and waterborne diseases: drink water that is bottled or bring it to a rolling boil for 1min. Bottled carbonated water is safer than uncarbonated water. Avoid ice and food products (e.g. ice cream) that made with contaminated water. Eat foods that have been thoroughly cooked and that are hot and steaming. Avoid raw vegetables and fruits that cannot be peeled. Peel the fruit and vegetables yourself after washing your hands with soap. Do not eat the peelings. Avoid foods and beverages from street vendors.

Source: Travel Health and Outbreak Response Units, NICD.
References: ProMED-Mail (www.promedmail.org), World Health Organization (www.who.int), Centers for Disease Control and Prevention (www.cdc.gov), Europe Media Monitor (http://medusa.jrc.it/medisys/helsinkiedition/en/home.html); last accessed 2010/02/12.

This communiqué is published by the National Institute for Communicable Diseases (NICD) on a monthly basis for the purpose of providing up-to-date information on communicable diseases in South Africa. Much of the information is therefore preliminary and should not be cited or utilised for publication.