unaware of any reports that patients treated with these drugs have become susceptible to novel suppression-mediated transpositions.

Second, the frequency with which transposons are inactivated solely by a single nonsense mutation is quite low.[4] PTC124 does not suppress mRNAs containing more than one premature nonsense codon.[1]

Third, almost all transposons harbouring a nonsense mutation have also accumulated additional mutations,[4] presumably owing to a lack of selective pressure on these retroelements to maintain protein-coding potential. PTC124 does not correct protein production in transcripts containing conventional insertional, deletional, or mis-sense mutations[1]—ie, PTC124 is incapable of promoting the production of full-length proteins from such elements.

Finally, as Goodier and Mayer state, nonsense mutations are not always deleterious. Such mutations can mute genetic noise by promoting the degradation of nonsense-containing transcripts through the process of nonsense-mediated mRNA decay.[5] Because PTC124 promotes nonsense suppression, but does not affect the nonsense-mediated mRNA decay pathway,[1] levels of nonsense-containing transcripts are not affected by this compound.

In short, there is little scientific evidence to support the concept of retroelement activation by a drug such as PTC124.

EK and BK received funding support from PTC Therapeutics for this study. EMW, CT, MW, LM, and SWP are employees of PTC Therapeutics. AJ has no conflicts of interest.

*Eitan Kerem, Batsheva Kerem, Ellen M Welch, Christopher Trotta, Marla Weetall, Langdon Miller, Allan Jacobson, Stuart W Peltz
kerem@hadassah.org.il

Hadassah Hebrew University Hospital, Jerusalem, Israel (EK); Department of Genetics, Life Sciences Institute, Hebrew University, Jerusalem, Israel (BK); PTC Therapeutics, South Plainfield, NJ, USA (EMW, CT, MW, LM, SWP); and Department of Molecular Genetics & Microbiology, University of Massachusetts Medical School, Worcester, MA, USA (AJ)

1 Welch EM, Barton ER, Zhuo J, et al. PTC124 targets genetic disorders caused by nonsense mutations. *Nature* 2007; **447:** 87–91.
2 Hirawat S, Welch EM, Elfring GL, et al. Safety, tolerability, and pharmacokinetics of PTC124, a non-aminoglycoside, nonsense mutation suppressor, following single- and multiple-dose administration to healthy male and female adult volunteers. *J Clin Pharmacol* 2007; **47:** 430–14.
3 Howard M, Frizzell RA, Bedwell DM. Aminoglycoside antibiotics restore CFTR function by overcoming premature stop mutations. *Nat Med* 1996; **2:** 467–69.
4 Seleme MC, Vetter MR, Cordaux R, Bastone L, Batzer MA, Kazazian HH. Extensive individual variation in L1 retrotransposition capability contributes to human genetic diversity. *Proc Natl Acad Sci USA* 2006; **103:** 6611–16.
5 Mendell JT, Sharifi NA, Meyers JL, Martinez-Murillo F, Dietz HC. Nonsense surveillance regulates expression of diverse classes of mammalian transcripts and mutes genomic noise. *Nat Genet* 2004; **36:** 1073–78.

Humanitarian crisis in Vanni, Sri Lanka

Oliver Johnson and co-authors (March 7, p 809)[1] correctly point out that there is a humanitarian crisis in Sri Lanka and we are thankful to them for bringing up this important issue.

However, their letter contains some inaccuracies. The UN's announcement that cluster bombs were used on Puthukkudiyiruppu Hospital created major international concern, but the remark was later withdrawn[2] and the UN resident coordinator extended an apology.

Johnson and colleagues also report that humanitarian organisations have been banned by the Sri Lankan Government. The reference given for this statement actually states that "the government told all NGOs and UN to leave the area".[3] All these organisations are now based in Vavuniya, just outside the area of intense war. Not a single non-governmental organisation has actually been "banned".

Johnson and colleagues further express their concern over people entering government-held territory and being forced to remain in detention camps. However, they do not mention that terrorists are keeping civilians as hostages and have launched several attacks[4] on those who try to escape from the war zones. The UN humanitarian chief, after a 3-day visit to this area, urged the Liberation Tigers of Tamil Eelam to allow civilians to leave the conflict area.[5]

We Sri Lankans are indeed in a crisis. In order not to make it worse, we urge the international medical community to analyse carefully the facts presented about our stricken country and help Sri Lanka to overcome this major problem.

I declare that I have no conflicts of interest.

Suneth Agampodi
sunethagampodi@yahoo.com

Department of Community Medicine, Faculty of Medicine and Allied Sciences, Rajarata University of Sri Lanka, Anuradhapura, Sri Lanka

1 Johnson O, Ratneswaren A, Beynon F. Humanitarian crisis in Vanni, Sri Lanka. *Lancet* 2009; **373:** 809–10.
2 Amnesty International. Update on reported use of cluster munitions in attack on hospital. http://www.amnesty.org/en/for-media/press-releases/sri-lanka-cluster-bomb-strike-hospital-despicable-20090204 (accessed April 6, 2009).
3 Médecins Sans Frontières. Sri Lanka: 250,000 civilians trapped in intense fighting. http://www.msf.org.uk/civilians_trapped_in_sri_lanka_20090128.news (accessed March 9, 2009).
4 UN. UN relief chief concerned over physical condition of Sri Lankans trapped by clashes. http://www.un.org/apps/news/story.asp?NewsID=30046&Cr=sri+lanka&Cr1= (accessed March 9, 2009).
5 UN. On visit to Sri Lanka, UN humanitarian chief stresses need to protect civilians. http://www.un.org/apps/news/story.asp?NewsID=29954&Cr=sri+lanka&Cr1 (accessed March 9, 2009).

Assessment of childhood immunisation coverage

Stephen Lim and colleagues (Dec 13, p 2031)[1] recommend that, in the era of performance-based financial initiatives such as GAVI Alliance's immunisation services support (ISS), health indicators should be monitored by independent surveys rather than administrative data-monitoring systems.

However, Lim and colleagues' estimates for immunisation coverage during the period after the onset of ISS in some low-income countries such as Cameroon are heavily weighted by pre-ISS survey data. Such estimates assume that ISS did not have an effect on the performance of immunisation programmes—an assumption that is not supported by a closer look at immunisation data from Cameroon.

The printed journal includes an image merely for illustration

PA Photos

See **Editorial** page 1399
See **Department of Error** page 1428

When Cameroon received ISS in 2001, the reported administrative coverage for the third dose of the diphtheria, tetanus, and pertussis vaccine (DTP3) was only 43%.[2] An independent immunisation data quality audit for the same year revealed substantial over-reporting, since less than half of the reported DTP3 doses were verifiable.[3]

Within the context of ISS, after the independent immunisation data quality audit, immunisation registers and tally sheets were produced at central level and sent to all vaccinating units in the country accompanied by instructions on their use and guidelines on storage, reporting, and monitoring of immunisation data.[2] Reported DTP3 coverage increased to 82% in 2007. This figure was confirmed by a repeat independent immunisation data quality audit 2 years after the first,[4] and by the most recent national demographic and health survey.[5]

It is hard to imagine that these improvements would have occurred at the same rate in the absence of the GAVI Alliance ISS. Performance-based global financial initiatives will yield more benefits if emphasis for monitoring and assessment is put on targeted capacity building in countries.

The views expressed in this letter are those of the authors and not those of the Ministry of Public Health of Cameroon or other institutions to which the authors are affiliated. We declare that we have no conflicts of interest.

*Charles Shey Wiysonge, James Ofal
charles.wiysonge@uct.ac.za

Expanded Programme on Immunization, Ministry of Public Health, Yaoundé, Cameroon (CSW, JO); and Institute of Infectious Disease and Molecular Medicine, University of Cape Town, Cape Town, South Africa (CSW)

See Correspondence page 1427

1 Lim SS, Stein DB, Charrow A, Murray CJ. Tracking progress towards universal childhood immunisation and the impact of global initiatives: a systematic analysis of three-dose diphtheria, tetanus, and pertussis immunisation coverage. *Lancet* 2008; **372:** 2031–46.

2 Global Alliance for Vaccines and Immunization. Application form for Cameroon's proposal for support to: Immunization Services, Health System Strengthening and Injection Safety. http://www.gavialliance.org/resources/Cameroon_Proposal_for_Support.doc (accessed Dec 14, 2008).

3 Ronveaux O, Rickert D, Hadler S, et al. The immunization data quality audit: verifying the quality and consistency of immunization monitoring systems. *Bull World Health Organ* 2005; **83:** 503–10.

4 Global Alliance for Vaccines and Immunization. Le contrôle de la qualité des données au Cameroun. http://www.gavialliance.org/resources/DQA_2004_Cameroun_fr.pdf (accessed Dec 14, 2008).

5 Institut National de la Statistique (INS) et ORC Macro. Enquête démographique et de santé du Cameroun 2004. Calverton: INS et ORC Macro, 2004. http://www.measuredhs.com/pubs/pdf/FR163/FR163-CM04.pdf (accessed Dec 15, 2008).

Stephen Lim and colleagues[1] scrutinise coverage with the third dose of diphtheria-tetanus-pertussis vaccine (DTP3) in 193 countries. With donor emphasis on DTP3 coverage, it is not surprising that the national estimates might be inflated. Still, there is little doubt that DTP3 coverage has increased in recent decades.

But maybe we should be more concerned about the health implications of this trend than about the accuracy of the estimate. From a public health perspective, the fact that DTP3 coverage is now higher than measles vaccine coverage in most African countries is of questionable value. Numerous studies have shown that measles vaccine is beneficial for child survival,[2] but there are conflicting data about the effect of DTP.

DTP has frequently been associated with increased mortality in situations with herd immunity.[3] Furthermore, as a result of the drive to increase the DTP3 coverage, more children receive DTP simultaneously with or after measles vaccine. We have found consistently that DTP given simultaneously with measles vaccine (table) or after it[4] is associated with increased mortality compared with having measles vaccine alone as the most recent vaccine.

In a study from Bangladesh, children who received DTP/BCG after the age of measles vaccine administration had around threefold higher mortality than unvaccinated children.[5] These observations have not been contradicted. If they are true, the drive to boost the DTP3 coverage could lead to increased child mortality. Current policy is based on the assumption that receiving three DTP vaccines is associated with decreased child mortality. It should be a major priority to determine whether this assumption is correct.

	Mortality ratio (95% CI)
Malawi	5·27 (1·1–25·0)
Democratic Republic of Congo	5·38 (1·4–21·2)
Guinea-Bissau	1·87 (1·1–3·3)
Gambia	3·42 (1·9–6·2)

References for these studies are available from the authors.

Table: **Mortality ratio for children receiving DTP together with measles vaccine compared with measles vaccine as most recent vaccine**

We declare that we have no conflicts of interest.

*Peter Aaby, Christine S Benn

Bandim Health Project, Apartado 861, Bissau, Guinea-Bissau, and Statens Serum Institut, Copenhagen, Denmark

1 Lim SS, Stein DB, Charrow A, Murray CJ. Tracking progress towards universal childhood immunisation and the impact of global initiatives: a systematic analysis of three-dose diphtheria, tetanus, and pertussis immunisation coverage. *Lancet* 2008; **372:** 2031–46.

2 Aaby P, Samb B, Simondon F, Coll Seck AM, Knudsen K, Whittle H. Non-specific beneficial effect of measles immunisation: analysis of mortality studies from developing countries. *BMJ* 1995; **311:** 481–85.

3 Aaby P, Benn CS, Nielsen J, Lisse IM, Rodrigues A, Jensen H. Estimating the effect of DTP vaccination on mortality in observational studies with incomplete vaccination data. *Trop Med Int Health* 2007; **12:** 15–24.

4 Aaby P, Jensen H, Samb B, et al. Differences in female-male mortality after high-titre measles vaccine and association with subsequent vaccination with diphtheria-tetanus-pertussis and inactivated poliovirus: reanalysis of West African studies. *Lancet* 2003; **361:** 2183–88.

5 Breiman RF, Streatfield PK, Phelan M, Shifa N, Rashi M, Yunus M. Effect of infant immunization on childhood mortality in rural Bangladesh: analysis of health and demographic surveillance data. *Lancet* 2004; **364:** 2204–11.

Department of Error

Johnson O, Ratneswaren A, Beynon F. Humanitarian crisis in Vanni, Sri Lanka. Lancet *2009;* **373:** *809–10*—In this Correspondence letter (March 7), the authors stated that "Hospitals have been hit repeatedly with cluster bombs,[3] banned by an international treaty…". The UN, which initially reported these incidents, later withdrew the claim. This phrase should therefore be deleted.