

Week in review

**FLU ADVICE**

THE Education Department urged parents to keep sick children at home if they show symptoms of cold or influenza.

As a precaution against swine flu, the department has sent a letter home to parents asking that they keep children away from school if they develop symptoms such as a runny nose or fever.

**SCIENCE SNUBBED**

ONE in three bright science students has no interest in pursuing a career in the field, an OECD report released last week shows.

High schools in Finland, New Zealand, Japan and Australia have the best science and maths results, according to the *Top of the Class* study. About 35 per cent of Australian 15-year-olds who top their class in science have no interest in pursuing a related career, compared with 40 per cent across the 30 OECD countries.

**DISABILITY AWARENESS**

SCHOOLS have been urged to add the International Day of People with Disability on December 3 to their calendar after a school's plan to raise money by having children dress as disabled people raised public outcry. Ramco Primary School in Waikerie changed its fundraising idea after disability advocates said it was in poor taste. The children will now come to school dressed in bright colours or make badges with smiley faces instead, with the money raised going to a Bangladesh charity.

**COAG TARGETS**

THE Council of Australian Governments agreed to bring forward its school retention targets by five years, setting a goal of achieving 90 per cent Year 12 attainment rates by 2015. It also warned school leavers living at home they will have to be in study, training or work until 21 or their parents risk losing Family Tax Benefit A.

COAG also outlined plans to establish a national regulatory body for the vocational education and training sector.

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# CAN YOU BELIEVE IT?

WITH JAMES BYRNE, UNIVERSITY OF ADELAIDE

## Hygiene hypothesis

Are we too clean for our own good?

**S**OME scientists believe that people in the developed world are more likely to suffer from a range of disorders, especially allergies, because our standards of cleanliness have improved. This is the crux of what has been called the hygiene hypothesis. This suggests that as humans have improved levels of sanitation, the incidence of allergies and associated conditions has increased.

It's believed the underlying reason for this is that we are no longer challenged to the same extent by micro-organisms, as we once were in our childhood, due to urbanised living.

In 1884, one scientist, Sir Morell Mackenzie, observed a low incidence of allergies in farmers and their children.

He hypothesised that their exposure to high amounts of pollen caused their immune system to tolerate its presence, rather than react to it.

This is how the idea of tolerance to antigens (that is, anything capable of being recognised by the immune system) developed. As farmers and their children spent a lot of time outside - and often worked closely with animals - they were frequently in contact with many of the now identified causes of allergies, and so built up an ability to tolerate them.

The consequence of shifting from farming to city living, and improvements in sanitation and hygiene, is that we have changed the environment in which children grow up. Most early evolution took place in mud and 99 per cent of human evolution took place in isolated hunter-gatherer communities. As we have been intimately close to nature for the majority of our history but more recently have moved into exclusively urban environments, we have not only restricted our exposure to pollen but to many other allergens and micro-organisms to which we would have been exposed.

Limited exposure has led to a reduction in tolerance, resulting in inappropriate responses to substances such as pollens and harmless micro-organisms. This has led some leading researchers to alter their interpretation of the hygiene hypothesis and even call for a name change. They are quickly realising that it is not a question of how much exposure, but rather *what* it is we are exposed to.

□ **James Byrne is a PhD student of microbiology at the University of Adelaide.**



### Allergy anguish

■ Substances such as pollen are capable of initiating an allergic response that results in an inappropriate and disproportionate response by the immune system.

■ Hay fever is the archetypal allergy. Other common allergies include foods, such as peanuts or shellfish, and dust mites.

■ Observations have shown farmers and their children traditionally do not suffer from allergies to the same extent as city dwellers.

■ A current area of hot research suggests we may be able to cure or reduce the severity of allergies by re-introducing micro-organisms known as "old friends".

Researchers are beginning to identify micro-organisms that would have been prevalent in the historical environment, but to which children in urban areas now have reduced exposure. These organisms carry some interesting properties.

It is hypothesised by these researchers that these missing organisms, or our "old friends" as they are known within the field, were picked up by children in the evolutionary past but were not attacked by the immune system. The reason why is complicated, but sometimes the immune system has to decide whether it will cost more energy to respond and attack or to not respond, so these organisms were not worth the effort. Some say they teach the immune system to not respond - and even to overlook the fact that they are there.

The ability of the immune system to overlook antigens is very important considering that we breathe air that is full of particles, consume food and drink and, in fact, are made up of a series of antigens

ourselves. If the body responded to these inputs, we would not survive. Your lunch is unlikely to act as a pathogen in your system and it is in your body's best interest to repress the immune system and allow you to absorb the nutrients from the food.

The transition away from the hygiene hypothesis to the "old friends" hypothesis represents a transition in the way we view the immune system, from something that aggressively attacks invaders to a system that actively represses itself in response to most stimuli.

While the science behind this phenomenon is still being understood, one thing that all researchers agree on is the unsuitability of the term hygiene hypothesis. Improvements in hygiene have allowed for the control of large numbers of human pathogens and ignoring hygiene would not improve the human condition. The old friends or microbial exposure hypotheses are more accurate descriptions of this interesting science.

### YOUNG GUNS WINNERS

State Theatre Company would like to congratulate the winners of Young Guns 10 Playwrights' Competition.

**Matt van Giesen**  
Elizabeth

**Kelly Vincent**  
Gravity

To attend a free staged reading of these scripts at the Space Theatre on Thursday 21 May at 1.30pm please ring 8231 5151 to reserve your seat.

Thank you to everyone who entered their scripts.



## Give students a reason to stay

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Australian Council for Educational Research principal research fellow Sheldon Rothman said students who planned to go to university or study a trade knew what subjects to take but many disengaged youths needed more guidance.

"In general it is still a good idea to stay on at school but it depends on what you do while you're there," he said.

"If they take a very unfocused

program (in Year 12) they don't do very well and they may as well have left school early and tried to start a career.

"Even if they get inspired (about their future) by the middle of Year 12 they may find that they've gone down a path that's not going to get them anywhere."

The experts recommend: **TARGETING** career advice to those with no post-school plans. **OFFERING** more flexible curricula, including opportunities

for vocational education and training.

**GIVING** teachers more time to spend with at-risk students.

A report by the Brotherhood of St Laurence, which tracked eight young people who left school between the ages of 14 and 16, also calls for better resources to identify and support at-risk students.

The report says common reasons for dropping out include poor grades and an inability to "see where school was heading".