

# 30 days in medicine

## Penicillin allergies and superbug infections

Those with a penicillin allergy recorded in their medical records are at increased risk of developing the drug-resistant methicillin-resistant *Staphylococcus aureus* (MRSA) infection and the healthcare-associated infection *Clostridium difficile*, according to US research published in the *BMJ*.

Researchers at Massachusetts General Hospital, Boston, examined the relationship between penicillin allergy and development of MRSA and *C. difficile* using data from the Health Improvement Network, an electronic medical database of 11 million UK patients, and identified 64 141 adults with a documented penicillin allergy. None of the participants had any history of MRSA or *C. difficile* infection. They were followed up for an average of 6 years, during which use of antibiotics and cases of MRSA and *C. difficile* were recorded. After adjusting for known risk factors, researchers found that a penicillin allergy label was associated with a 69% increased risk of MRSA and a 26% increased risk of *C. difficile*. The results show that increased use of broad-spectrum antibiotics accounted for more than half (55%) of increased MRSA risk and more than one-third (35%) of the increased *C. difficile* risk among patients with a listed penicillin allergy.

Blumenthal KG, Lu N, Zhang Y, et al. Risk of methicillin resistant *Staphylococcus aureus* and *Clostridium difficile* in patients with a documented penicillin allergy: Population based matched cohort study. *BMJ* 2018;361:k2400. <https://doi.org/10.1136/bmj.k2400>.

## Target breast cancer screening

A risk-stratified approach could improve the cost-effectiveness of breast cancer screening and reduce the 'cost' of overdiagnosis to women, according to a modelling study published in *JAMA Oncology*. According to the study, the age-based 'one-size-fits-all' breast screening approach does not take individual variation in risk into account.

A life-table model was created of a hypothetical cohort of 364 000 women in the UK, aged 50 years, with follow-up to age 85 years using findings of the Independent UK Panel on Breast Cancer Screening and risk distribution based on polygenic risk profile. The modelled interventions were no screening, age-based screening (based on the UK screening programme of a mammogram every 3 years from age

50 to 69 years) and risk-stratified screening (a proportion of women aged 50 years with a risk score greater than a threshold risk offered screening every 3 years to age 69).

Their finding was that a risk-stratified screening strategy could improve the benefit-to-harm ratio and the cost-effectiveness of the breast screening programme, with diminishing return with screening offered to women at lower risk.

Pashayan N, Morris S, Gilbert FJ. Cost-effectiveness and benefit-to-harm ratio of risk-stratified screening for breast cancer. *JAMA Oncol* 2018 (epub 5 July 2018). <https://doi.org/10.1001/jamaoncol.2018.1901>

## Full-fat dairy may be good for your heart

A new study from the Friedman School of Nutrition Science and Policy at Tufts University, Boston, USA, challenges the long-held belief that full-fat dairy products must be avoided. Published in the *American Journal of Clinical Nutrition*, the study suggests that some dairy fats may be beneficial for cardiovascular health.

The authors looked at the effect of dairy products on mortality risk and cardiovascular health in >2 900 US people, aged ≥65 years. They measured participants' blood plasma levels of three fatty acids contained by dairy products at the beginning of the study in 1992, and then 6 and 13 years later. During the 22-year follow-up period, 2 428 participants died and 833 deaths were due to heart disease. However, none of the three fatty acids examined correlated with the risk of total mortality. In fact, higher circulating levels of heptadeconic fatty acid were associated with a lower risk of death from heart disease. In addition, adults with higher levels of fatty acids overall were 42% less likely to die from stroke.

The authors suggest that these findings should lead to current dietary guidelines being amended and point out that dairy products are a rich source of nutrients such as calcium and potassium.

De Oliveira MC, Lemaitre RN, Song X, et al. Serial measures of circulating biomarkers of dairy fat and total and cause-specific mortality in older adults: The Cardiovascular Health Study. *Am J Clin Nutr* 2018 (epub 11 July 2018). <https://doi.org/10.1093/ajcn/nqy117>

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