crude plasmid extract obtained using the Kieser method into *Escherichia coli* TOP10.\textsuperscript{7} Plasmid analysis of the *K. pneumoniae* isolate and its transformant confirmed that *bla*\textsubscript{KPC-2} was located on an ~75 kb plasmid. No other antibiotic resistance marker was co-transferred. PCR-based replicon typing of the major plasmid incompatibility groups showed that the *bla*\textsubscript{KPC-2}-positive plasmid belonged to the IncFIIAS incompatibility group.\textsuperscript{7} We believe this is the first report of a KPC-producing isolate of *K. pneumoniae* from Switzerland. It seems likely that the isolate was imported as a result of the transfer of a patient from Sicily. In Italy, several studies reported KPC-2- or KPC-3-producing *K. pneumoniae* isolates, being mostly of ST258 type.\textsuperscript{4,8,9} There is a need for urgent action to slow down and control the worldwide and epidemic spread of enterobacterial carbapenemase producers, including countries with a low level of antibiotic resistance, such as Switzerland.

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**CO\textsubscript{2}**-dependent methicillin-resistant *Staphylococcus aureus*

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Sir,

A female patient in her 20s presented with a right thigh abscess. There was local swelling and erythema. There was no indication for surgical drainage and the patient was commenced on intravenous flucloxacillin with clinical improvement. This was changed to oral flucloxacillin and the patient self-discharged and was lost to follow-up.

A wound swab of the thigh abscess was sent to the laboratory. Gram staining revealed polymorphs and Gram-positive cocci. The specimen was incubated on horse blood agar with 5% CO\textsubscript{2} and on MacConkey agar aerobically. Growth of Gram-positive cocci, which were slide coagulase positive (Remel), was noted within 24 h on horse blood agar, but not on MacConkey agar. Susceptibility testing was attempted using Vitek2, but growth in the control well was not achieved, and therefore the attempt was terminated. The organism did not grow under aerobic conditions on a purity plate.

Disc susceptibility was performed on Mueller–Hinton agar and the isolate was subcultured on MRSASelect (Bio-Rad, Australia). Both were incubated in 5% CO\textsubscript{2} as well as O\textsubscript{2}. Growth was observed only in the presence of CO\textsubscript{2}. CLSI disc diffusion susceptibility testing was performed and the cefoxitin (30 \(\mu\)g) zone diameter was 12 mm.\textsuperscript{1} RT–PCR for *femA* and *mecA* genes was positive.\textsuperscript{2,3} The isolate was confirmed to be methicillin-resistant *Staphylococcus aureus* (MRSA). In addition, molecular testing for the Panton–Valentine leucocidin (PVL) gene by SYBR green RT–PCR assay was performed and was positive.\textsuperscript{4} The isolate was sent for typing at the Department of Microbiology and Infectious Diseases, Path West Laboratory Medicine, Nedlands, WA, Australia, and was sequence type 30 (ST30).

*Staphylococci* are common colonizers of humans and are frequently isolated in clinical specimens. Variant subpopulations of staphylococci have been described that appear and behave differently to the more commonly isolated *S. aureus*.\textsuperscript{5} As such, specific nutritional and atmospheric requirements may be needed to isolate and characterize these organisms.

CO\textsubscript{2}-dependent *S. aureus* was first reported in 1955.\textsuperscript{6} CO\textsubscript{2}-dependent *S. aureus* may appear as a population of small colony variant (SCV) *S. aureus* that is defective in electron transport and respiratory activity and can be easily
misidentified by the laboratory. SCV S. aureus may cause persistent and recurrent infections and may have novel mechanisms for antibiotic resistance. While there have been previous reports of CO₂-dependent S. aureus, to our knowledge, this is the first reported case of a CO₂-dependent PVL-producing MRSA. Recognition of this variant by laboratories can be achieved by incubation in both O₂- and CO₂-containing atmospheres.

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References