Electrocardiogaffe

Because a physician has possessed himself of an electrocardiograph, a polygraph, an x ray machine, a blood pressure instrument, or some ingenious form of stethoscope, it does not at all follow that he has become competent to judge a patient’s condition; not infrequently the very reverse is the case, for more often than not the limitations of these devices are far from being comprehended.

Thomas Lewis, British Medical Journal 1919

Figure 1: A subject connected for observation of the electrocardiogram

Figure 2: A normal trace on an electrocardiogram

Novel antimicrobials

Although electronic health records have widely reduced medication errors, and computerised hospital orders are an undeniable step-up in clarity from handwritten orders, they are not a patient safety panacea.

Interpreting free text clinical information of any kind is far from straightforward, especially when it comes to antimicrobials. For starters, hundreds of antimicrobials exist, many have similar sounding names (looking at you, cephalosporins) and each antimicrobial can be referred to variously by brand name, generic name, or drug class. With 80 antimicrobials beginning with “ceph-” or “cef-”, and 54 ending in “-mycin,” it’s no wonder that many staff struggle to spell each one correctly.

When healthcare teams submit patient samples for microscopy and culture, microbiology laboratories use clinical information included in the request to inform specimen preparation and analysis as well as result interpretation.

Misspelling the names of common antimicrobials could, on occasion, create confusion for those interpreting clinical details included in investigation requests. On a more lighthearted note, we often come across amusing misspellings.

As part of a project aiming to improve the quality and quantity of clinical information included with microbiology requests, we interrogated our laboratory information management system for free text data submitted using the

<table>
<thead>
<tr>
<th>NOVEL MISSPELLINGS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Novel antimicrobial</td>
</tr>
<tr>
<td>Ababactum</td>
</tr>
<tr>
<td>Aztreoman</td>
</tr>
<tr>
<td>Caspafungin</td>
</tr>
<tr>
<td>Cedofaxi</td>
</tr>
<tr>
<td>Cefotaxime</td>
</tr>
<tr>
<td>Cerfu</td>
</tr>
<tr>
<td>Clarithromycin</td>
</tr>
<tr>
<td>Ertapenem</td>
</tr>
<tr>
<td>Flucloxacillin</td>
</tr>
<tr>
<td>Ganciclovir</td>
</tr>
<tr>
<td>Nitrofurantoin</td>
</tr>
<tr>
<td>Odfoxacin</td>
</tr>
<tr>
<td>Peptaz</td>
</tr>
<tr>
<td>Retapenem</td>
</tr>
<tr>
<td>Taxocin</td>
</tr>
<tr>
<td>Tigecycline</td>
</tr>
<tr>
<td>Trimeprazine</td>
</tr>
</tbody>
</table>

Hundreds of antimicrobials exist and many have similar sounding names—we’re looking at you, cephalosporins.
Select the most plausible pathophysiological explanation for each ECG waveform below to find the electrocardiogaffe. We do not guarantee that the clues will help.

ECG 1: “HEARS THE RUB”
A Acute myocardial infarction
B Brugada syndrome
C Lown-Ganong-Levine syndrome
D Pericarditis
E Ventricular pre-excitation

ECG 2: “MMM . . .”
A Atrial fibrillation
B Bizarre ECG
C P mitrale
D Ventricular extrasystole
E Ventricular fibrillation

ECG 3: “ARTIFICIAL ADDITIVE”
A Atrial fibrillation
B Bizarre ECG
C Left bundle branch block
D Pericarditis
E Ventricular fibrillation

ECG 4: “I THINK WE ARE IN FOR A SHOCK”
A Atrial fibrillation
B Complete heart block
C Parkinson’s disease
D Ventricular fibrillation
E Ventricular tachycardia

ECG 5: “NOT GETTING VERY FAR”
A Atrial premature beat
B First degree AV block
C Hypothermia with J (Osborne) wave
D Long QT syndrome
E Normal ECG

ECG 6: “SHORT CIRCUIT”
A First degree AV block
B Junctional rhythm
C P pulmonale
D Ventricular bigeminy
E Ventricular pre-excitation

ECG 7: “AT THE JUNCTION”
A First degree AV block
B Junctional rhythm
C Left anterior hemiblock
D Normal ECG
E Sinus arrhythmia

Patricia McGettigan
p.mcgettigan@qmul.ac.uk
Ian C Cooper
Jennifer H Martin
Anne-Marie Schjerning
Robin E Ferner
Cite this as: BMJ 2022;379:e074083

Current media representations of ECGs, however, often fail to reflect the electrical constancy of the heart. We found, in a short search of Google Images using the terms “healthy heart,” “heart attack,” and “cardiac society,” that few depicted a normal waveform. Roughly a quarter of the 45 images we considered showed pathological ECG complexes, but many more featured outright bizarre complexes, previously unrecognised in clinical practice—electrocardiogaffes, as we call them. Even some well known healthcare organisations included strange ECG waveforms in their logos.

Many of these internet ECG images would have induced palpitations in Lewis or perhaps set off a premature atrial contraction in a practising cardiologist. We hope that clinicians have acquired the essential skill of interpreting ECGs but admit that it can be hard to tell normal from abnormal from fabricated. When in doubt, do what we did—ask a cardiologist.

Daniel Weiand
dweiand@nhs.net
Joanna Lumb, Freeman Hospital, Newcastle upon Tyne Hospitals NHS Foundation Trust
Cite this as: BMJ 2022;379:o2946

Over two 10 week periods, the clinical details included with 10 760 culture requests specified 13 838 antimicrobials purported to have been used in the treatment of patients at the Newcastle upon Tyne Hospitals Trust. Of these, 1395 were misspelt. Meropenem was the most commonly misspelt agent (207 times), usually as meropenum (114), followed by cephalexin (136), piperacillin-tazobactam (106) usually as tazosin (21), and gentamicin (73) usually as gentamycin (55, see supplementary table online).

We found many unusual and insightful misspellings, some alluding to seemingly novel compounds (table, left). Researchers and drug companies might want to take inspiration from our findings when naming yet-to-be released antimicrobials.
Parsing all social and clinical clues into a unifying diagnosis is essentially solving a puzzle. As in medicine, each clue in a cryptic crossword is a puzzle in and of itself. Cryptic clues contain both a definition of the answer and a wordplay element that leads you to the same word.

Like any diagnostic challenge, the solution might seem easy in retrospect, but an empty grid can be daunting. The solution, alongside a table of explanations, can help you decode The BMJ’s cryptic crossword at bmj.com.

Cite this as: BMJ 2022;379:o2971

CLUES
ACROSS
1 Women begrudgingly pay fine to quit exercise (7) (psst, see pages 494-495)
5 Magazine returned graduate’s letters from Greece (6) (emanating from pages 482-483)
10 Android perhaps losing energy in random reboot (5) (no help at all from pages 484-485)
11 One caring about lack of education (9)
12 Catch male donkeys in Australia and South America, say (10)
13/14 Assumption of no significance is worked out pointlessly—huh! (4,10) (BMJ statisticians might help, see page 498)
15 Organisation familiar to British key workers (6) (pages 492-493 could lend a hand)
17 Vote against article appearing among New Yorker’s leaders (3)
18 It’s cold in Leicestershire (3)
20 Sign on occasionally where chambermaid’s employed (3)
21 Objective of top journo around start of November (3)
23 Expressing annoyance when nothing’s repeatedly found in search engine (6)
25 Too engrossed in serials, obviously (4)
26 One new chap, present (according to Spooner) having entered very active state (2,4,4) (eg pages 490-491)
29 Stiff pine stick with ends shaved off protects the French (9)
30 A watery fluid spirit from Kent? (5)
31 “Astatine found in North Yorkshire river”—science journal (6)
32 Makes certain to blame head of state after Conservative loss (7)

DOWN
1 Where greens (five a day) are the ideal (6) (you’ll want to watch bmj.com)
2 Endlessly investigating singer in evidence this time of year (5)
3 Prepare tea to drums beaten by brainbox (10)
4 Conceptual artist on the outskirts of Torquay is in search of a drink (7) (we are, on pages 466-467)
6 Ashley, say, not starting to learn vibes (4)
7 Mother and grandmother embracing copper and Northern Ireland city dweller (9)
8 Every other summer lily, I hear, is more fragrant (8)
9 Number among us, born in revolution, are not acknowledged (6) (have a look at pages 470-471)
14 See 13 across
16 Appearing to have taken buffet after victory, detective cried (9)
19 Quote number one French filmmaker brought up after start of Christmas (8) (pages 496-497 may or may not help)
22 Give party a “ten,” surprisingly (6) (please see page 463)
23 Bread from British port held up by revolutionary (7)
24 American TV station covers strange remnants of meal (6) (psst, see pages 464-465)
27 Something wrong turned up in mirror reflection (5)
28 Reasonable trade show (6)