Sketching Antimicrobial Resistance

Thirty stories, One Health

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Prologue

There is a world within us and around us, invisible, ancient, and alive. A universe of microbes that help us digest food, protect our skin, and keep ecosystems balanced. Most of them live in harmony with us, but some can cause diseases. And, like every form of life, they adapt to survive. When they know how to withstand the medicines made to stop them, we encounter one of the most pressing health challenges of our time: antimicrobial resistance (AMR).

Antibiotics and other antimicrobials are among humanity's most remarkable discoveries. They changed the course of history, turning once-deadly infections into curable ones, making surgeries safe, and helping us and our animals live longer. Yet, the more we use them, and misuse them, the faster we lose their ability to heal. This invisible transformation unfolds everywhere: in hospitals and homes, on farms, in rivers, and in the soil beneath our feet.

But this story is not one of fear. It is one of awareness, care, and connection. Antimicrobial resistance reminds us that human, animal, and environmental health are woven into the same fabric. Every gesture —washing our hands, vaccinating our pets, using antibiotics only when necessary, or disposing of them properly— helps protect the balance.

This illustrated book is an invitation to look closer: to discover the beauty of a balanced microbial world and the power we hold to preserve it. Each illustration and message tells a piece of this shared story, one that belongs to all of us. Because loving our antibiotics means loving life itself.

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About EU-JAMRAI 2

EU-JAMRAI 2 is a collective commitment to protect the medicines that protect us. It brings together scientists, doctors, veterinarians, farmers, environmental specialists, policymakers, and citizens across Europe under a single mission: to slow down antimicrobial resistance and safeguard health for generations to come.

This initiative is part of the European Union's wider effort to make Europe a region of excellence responding to this global challenge; a place where collaboration, knowledge, and responsible action come together to protect health, now and in the future.

Born from the success of the first EU-JAMRAI, this second phase deepens collaboration through the One Health approach, recognising that the wellbeing of people, animals, and the environment are inseparable. Its mission goes beyond research centers and policies; it is about creating bridges between science and society, between everyday habits and global change.

Through EU-JAMRAI 2, Europe turns science into cooperation and cooperation into care. It reminds us that our health, the health of animals, and the health of the planet are bound together, and that only by acting as one can we preserve the delicate balance that sustains life.

01 The microbial world is diverse

Most microbes do not cause harm. Many are essential for our bodies and the environment. They help us digest food, protect our skin, and keep ecosystems balanced. But some can turn into dangerous pathogens that can cause serious infections.

"The diverse ecosystem of microbes that live all around us and in us, is invisible to the naked eye. Most play important roles in protecting us and keeping the world in balance, but some can be turned into dangerous microbes that can cause infection. This piece is an encouragement of how we all are different diverse people and we each have our role to play to bring balance and harmony."

Ashwin Chacko
Ireland

"Ní féidir leis an tsúil nocht an éiceachóras éagsúil miocrób a chónaíonn timpeall orainn agus ionainn. Tá róil thábhachtacha ag formhór acu maidir linn féin a chosaint agus an domhan a choinneáil i gcothromaíocht, ach is féidir cuid acu a iompú ina miocróib chontúirteacha a d'fhéadfadh ionfhabhtú a chur faoi deara. Is spreagadh é an píosa seo ar an gcaoi a bhfuilimid uile ina ndaoine éagsúla agus go bhfuil ról le himirt againn uile chun cothromaíocht agus comhchuibheas a thabhairt."

The microbial world is diverse
Ashwin Chacko

02 What are antimicrobials and what do they serve for?

Antimicrobials are life-saving medicines that revolutionized our society. Diseases that were once fatal became routine illnesses, requiring only a simple treatment. Among these, antibiotics are widely used antimicrobials to treat bacterial infections. They work by killing or limiting the growth of the bacteria that make humans and animals sick.

"I aim to draw attention to the things we tend to take for granted in everyday life. Like electricity in our homes, antimicrobials were still unimaginable just over a hundred years ago. Diseases that once seemed deadly and inevitable have today become largely treatable. That is why I invite the viewer to pause for a moment, dive into this colorful and diverse world, and reflect on the invisible helpers who make it all possible."

"Minu eesmärk on juhtida tähelepanu asjadele, mida me igapäevaelus tihti enesestmõistetavaks peame. Nagu elektrienergia meie kodudes, olid antimikroobsed ained veel veidi üle saja aasta tagasi mõeldamatud. Haigused, mis kunagi tundusid surmavad ja vältimatud, on tänapäeval suures osas ravitavad. Seetõttu kutsun vaatajat hetkeks peatuma, sukelduma sellesse värvikasse ja mitmekesisesse maailma ning mõtlema nähtamatutele abimeestele, kes selle kõik võimalikuks teevad."

Eiko Ojala
Estonia

What are antimicrobials and what do they serve for?
Eiko Ojala

03 What is antimicrobial resistance or AMR?

Antimicrobial resistance or AMR happens when bacteria or other microbes stop responding to the medicines designed to kill them. These are known as “superbugs”, and they can make infections much harder, and sometimes impossible to treat.

“Imagine a bug so strong it can outmuscle medicines. That’s antimicrobial resistance (AMR). Some microbes, often known as ‘superbugs,’ stop responding to treatment and make even simple infections a serious problem for health and healthcare. And here’s the catch: they’re already among us. It’s up to all of us to get curious, get informed, and help stop this problem from multiplying.”

“Įsivaizduokite tokį stiprų virusą, kad jis gali nugalėti vaistus. Tai yra antimikrobinis atsparumas (AMR). Kai kurie mikroorganizmai, dažnai vadinami „supervirusais“, nustoja reaguoti į gydymą ir net paprastos infekcijos tampa rimta problema sveikatai ir sveikatos priežiūrai. Ir čia yra problema: jie jau yra tarp mūsų. Visi turime būti smalsūs, informuoti ir padėti sustabdyti šios problemos plitimą.”

Kotryna Michaliovaite
Lithuania

What is antimicrobial resistance or AMR?
Kotryna Michaliovaite

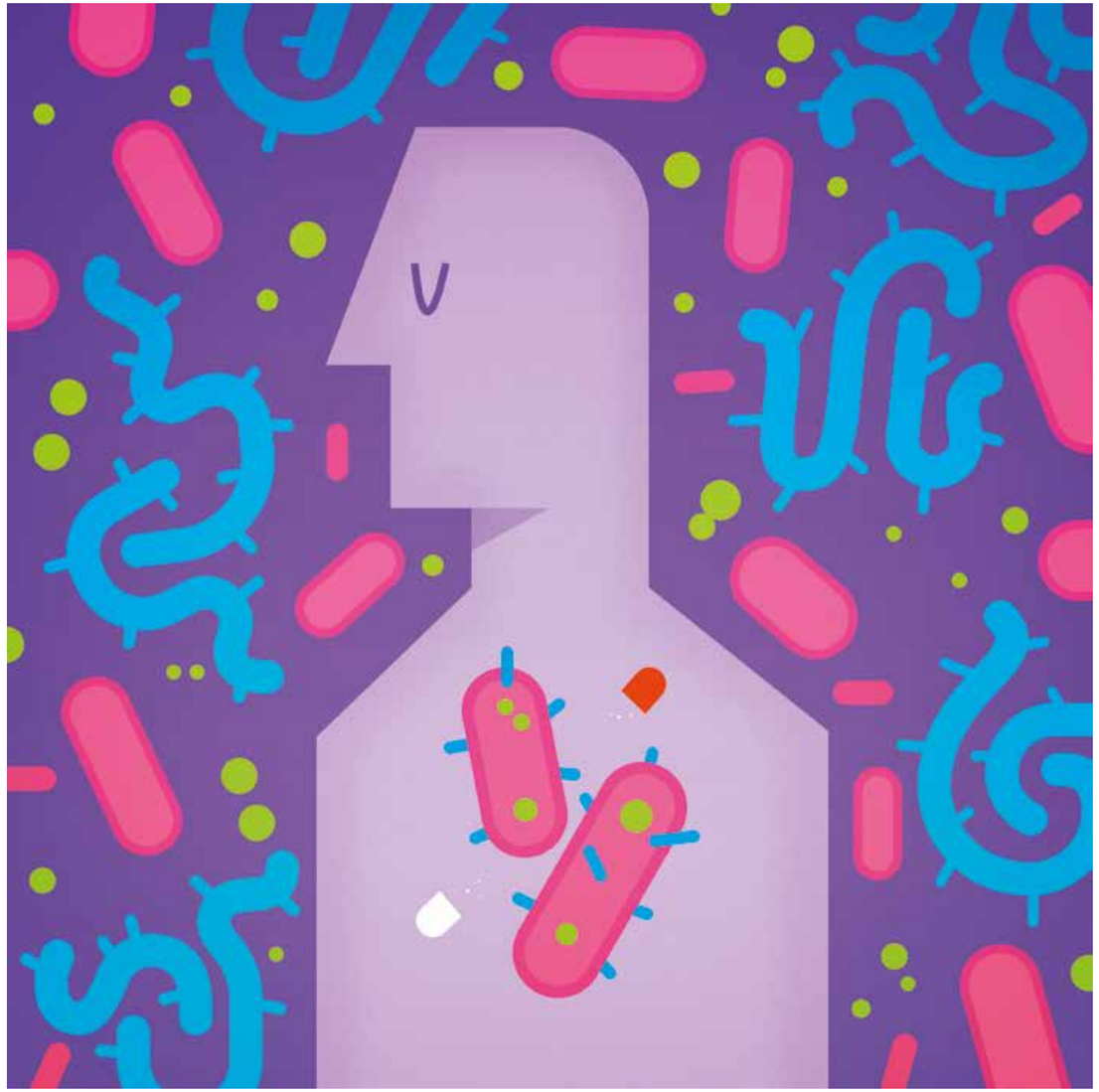
04 How does AMR develop?

Bacteria and other microbes are amazing creatures that adapt and evolve to survive. By mechanisms such as mutations or exchange of DNA, they can develop and acquire traits that make them resistant to antimicrobials medicines intended to kill them. Through these natural processes, new superbugs can thrive and spread.

"The illustration, in its simplicity, visualizes how bacteria and microbes mutate for their own survival. The DNA exchanges lead to the genesis of a new antibiotic-resistant bacterium (within the human silhouette), and the only one that survives despite the open capsule, which has no effect on it."

"L'illustrazione, nella sua semplicità, visualizza come i batteri e i microbi mutano per la propria sopravvivenza. Gli scambi di DNA portano alla genesi di un nuovo batterio resistente agli antibiotici (all'interno della sagoma umana), l'unico che sopravvive nonostante la capsula aperta, che non ha alcun effetto su di esso."

Ale Giorgini
Italy



How does AMR develop?
Ale Giorgini

05 A natural process accelerated by humans

Antimicrobial resistance is a natural process, but our actions are accelerating the process. Antibiotics and other antimicrobials are often used the wrong way in people, animals, and plants. The more we use them, the more chances we give bacteria and other microbes to become resistant superbugs. Does this mean we should stop using antibiotics? Absolutely not, but it does mean that we need to use them only when truly necessary and applying professional advice.

"Even though antimicrobial resistance is a natural process, human actions accelerate it. The drugs slipping through the hands symbolize our inability to fully control their effects, which can lead to the rise of superbugs. The harder we fight bacteria and other microbes, the more carefully we must ensure the proper use of antibiotics and other antimicrobials."

Mészely Ilka
Hungary

"Habár az antimikrobiális rezisztencia természetes folyamat, az emberi tevékenységek felgyorsítják azt. A kezek között kicsúszó gyógyszerek szimbolizálják, hogy nem tudjuk teljes mértékben kontrollálni azok hatását, ami szuperbaktériumok megjelenéséhez vezethet. Minél keményebben harcolunk a baktériumok és más mikrobák ellen, annál gondosabban kell ügyelnünk az antibiotikumok és más antimikrobiális szerek megfelelő használatára."

A natural process accelerated by humans
Mészely Ilka

06 How does resistance spread?

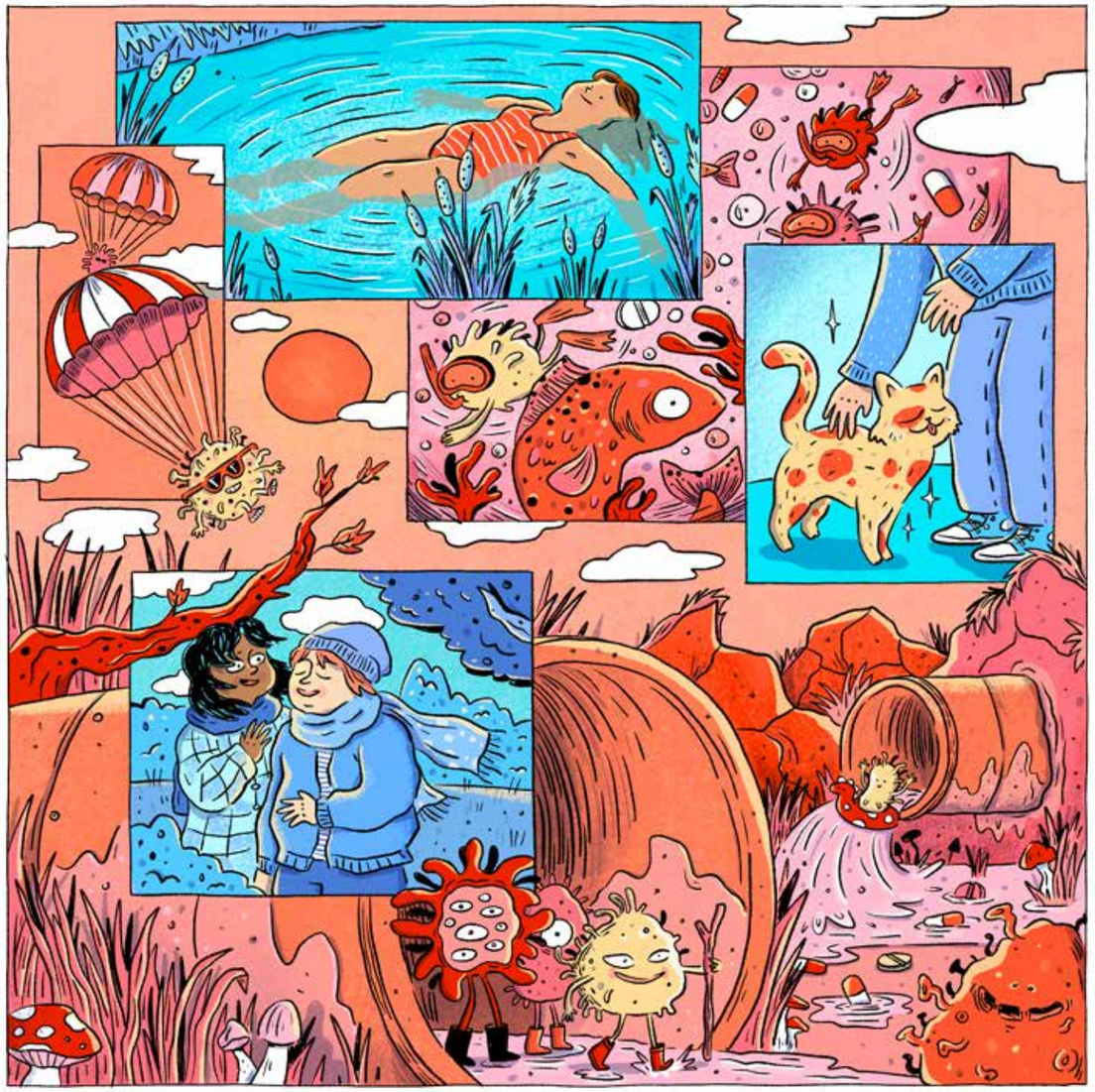
Antimicrobial resistance does not recognize frontiers. Microbes spread between and within animal, human and plant populations, and travel through waterways, soil and air. These movements can promote the dissemination of antimicrobial resistance.

"Antimicrobial resistance knows no borders. As humans, we're not always aware of this. But if you look carefully at the pictures and colors, you will see microbes travelling through air, water, wastes, animals..."

"La résistance aux antimicrobiens ne connaît pas de frontières. En tant qu'êtres humains, nous n'en sommes pas toujours conscients. Mais si vous regardez attentivement les images et les couleurs, vous verrez des microbes se déplacer dans l'air, l'eau, les déchets, les animaux..."

Laura Janssens
Belgium

"Antimicrobiële resistentie kent geen grenzen. Als mensen zijn we ons daar niet altijd van bewust. Maar als je goed naar de foto's en kleuren kijkt, zie je microben die zich door de lucht, het water, afval en dieren verplaatsen..."



How does resistance spread?
Laura Janssens

07 One Health World

Animal health, human health and environmental health are intrinsically intertwined and interdependent. We share the land, the resources and the microbes. As more than 60 percent of pathogens that cause human diseases originate from domestic animals or wildlife, protecting the health of animals and the environment also protects human health. Therefore, containing antimicrobial resistance requires a coordinated One Health approach that takes all these links into account.

"People tend to forget that they are living in an ecosystem where every animal, plant, and person shares the same resources. We are part of this world as much as it is part of us.

Our health and wellbeing are deeply connected to nature and all the living creatures around us. This is a gentle reminder to appreciate our planet and to live in harmony with it, rather than endlessly exploiting and contaminating its resources."

Theodor Hristov (Lobster Studio)
Bulgaria

"Хората са склонни да забравят, че живеят в екосистема, в която всяко животно, растение и човек споделят едни и същи ресурси. Ние сме част от този свят, както и той е част от нас.

Нашето здраве и благополучие са дълбоко свързани с природата и всички живи същества около нас. Това е леко напомняне да ценим нашата планета и да живеем в хармония с нея, вместо безкрайно да експлоатираме и замърсяваме нейните ресурси."

One Health World
Theodor Hristov (Lobster Studio)

08 AMR is endangering global health

We are running out of options to cure serious infections in humans, animals and plants. Each year, 1.2 million people lose their lives because of antimicrobial resistance. A number equivalent to the combined annual deaths from HIV/AIDS and malaria. If nothing is done, 39 million people will die because of AMR by 2050.

"This woman's body works like a scale or measurement of the global threat that affects us all. Alongside the extensive amount of antimicrobials that are within her, the bacteria are getting stronger, becoming resistant, and undermining her health, our health."

"Le corps de cette femme fonctionne comme une balance ou un indicateur de la menace mondiale qui nous touche tous. Parallèlement à la quantité importante d'antimicrobiens qu'elle contient, les bactéries deviennent plus fortes, résistantes et nuisent à sa santé, à notre santé."

"Dëse Fraekierper funktionéiert wéi e Moossstaf fir déi global Bedrohung, déi eis all betrëfft. Trotz de ville Medikamenter, déi si an sech dréit, ginn d'Bakterie méi staark, méi resistent, a schueden hirer Gesondheet — esou wéi och eiser."

Lisa Junius
Luxembourg

AMR is endangering global health
Lisa Junius

09 AMR severely compromises the progress of modern medicine

Imagine a world without transplants or surgeries... Without effective antibiotics to treat infections, life-saving procedures such as organ transplants, chemotherapy, and surgeries could become extremely dangerous.

"Imagining a world without modern medicine... it would be a sorrowful world.

Throughout the illustration there are visual representations of life, blooming flowers, and butterflies that symbolize rebirth. Death as well, the fragility of life, of fallen hopes, collapsing medical tools and an hourglass to highlight the urgency of how decisions and choices cost time and lives.

Raising awareness by showcasing two altered rooms, weighting the pros and cons, light and darkness, hope and fear. By portraying antimicrobial resistance not just as a common biological phenomenon but as an ominous risk to medical advancement, of life saving therapies, routine procedures and global health consequences."

Melpomeni Chatzipanagiotou
Greece

"Φανταστείτε έναν κόσμο χωρίς τη σύγχρονη ιατρική... θα ήταν ένας θλιβερός κόσμος.

Σε όλη την εικονογράφηση υπάρχουν οπτικές αναπαραστάσεις της ζωής, ανθισμένα λουλούδια και πεταλούδες που συμβολίζουν την αναγέννηση. Επίσης, ο θάνατος, η ευθραυστότητα της ζωής, οι χαμένες ελπίδες, τα κατεστραμμένα ιατρικά εργαλεία και μια κλεψύδρα για να τονιστεί η επείγουσα ανάγκη των αποφάσεων και των επιλογών που κοστίζουν χρόνο και ζωές.

Ευαισθητοποίηση του κοινού μέσω της παρουσίασης δύο μεταβαλλόμενων δωματίων, της στάθμισης των πλεονεκτημάτων και των μειονεκτημάτων, του φωτός και του σκότους, της ελπίδας και του φόβου. Απεικόνιση της μικροβιακής αντοχής όχι μόνο ως ένα κοινό βιολογικό φαινόμενο, αλλά ως έναν απειλητικό κίνδυνο για την ιατρική πρόοδο, τις θεραπείες που σώζουν ζωές, τις συνήθεις διαδικασίες και τις παγκόσμιες συνέπειες για την υγεία."

AMR severely compromises the progress of modern medicine
Melpomeni Chatzipanagiotou

10 AMR is pressing health systems and national economies

Resistant infections mean longer illnesses, fewer treatment options and longer hospital stays. All of this puts extra pressure on healthcare systems and increases the cost of care for everyone. In Europe alone, treating infections caused by resistant microbes costs nearly €12 billion every year including extra medical care and lost productivity.

"The weight of resistance. A wave of medicines and means moves forward, pressing against the fragile walls of hospitals. Each treatment, each attempt to heal, each struggle against resistance carries its own cost.

Behind every recovery lies time, resources, and the quiet work of people who help preserve life. As resistance grows, recovery takes longer, and the balance between healing and cost begins to strain, pressing on the structure of care. The fragile light of this weight touches us all, in hospitals, at home, in the unseen rhythm of everyday life. To guard this light is to protect what keeps us alive."

Anastasia Suvorova
Cyprus

"Το βάρος της αντοχής Ένα κύμα φαρμάκων και μέσων προχωράει, πιέζοντας τα εύθραυστα τείχη των νοσοκομείων. Κάθε θεραπεία, κάθε προσπάθεια θεραπείας, κάθε αγώνας ενάντια στην αντοχή έχει το δικό του κόστος.

Πίσω από κάθε ανάρρωση κρύβονται χρόνος, πόροι και η σιωπηλή δουλειά των ανθρώπων που βοηθούν στη διατήρηση της ζωής. Καθώς η αντοχή αυξάνεται, η ανάρρωση διαρκεί περισσότερο και η ισορροπία μεταξύ θεραπείας και κόστους αρχίζει να τεντώνεται, πιέζοντας τη δομή της περίθαλψης. Το εύθραυστο φως αυτού του βάρους μας άγγιξε όλους, στα νοσοκομεία, στα σπίτια μας, στον αόρατο ρυθμό της καθημερινής ζωής. Το να προστατεύουμε αυτό το φως σημαίνει να προστατεύουμε αυτό που μας κρατά ζωντανούς."

AMR is pressing health systems and national economies
Anastasia Suvorova

11 AMR is undermining animal health and welfare

The spread of resistant bacteria and other superbugs in terrestrial and aquatic animals leads inexorably to an increase in animal suffering and losses. This in turn affects livelihoods worldwide, as 1.3 billion people rely on livestock for their living and over 20 million people depend on aquaculture.

"There is a deep bond between humans and farm animals, built on mutual dependence. The essence of this relationship should be our attentiveness, the ability to perceive and understand the needs of animals.

This illustration shows a human standing on equal footing with the animals, returning their gaze, aware that their own existence is inextricably intertwined with theirs."

"Między ludźmi a zwierzętami hodowlanymi istnieje głęboka więź oparta na wzajemnej zależności. Istotą tej relacji powinna być nasza uważność, umiejętność dostrzegania i rozumienia potrzeb zwierząt.

Ilustracja przedstawia człowieka stojącego na równi ze zwierzętami, odwzajemniającego ich spojrzenie, świadomego, że jego własna egzystencja jest nierozerwalnie związana z ich egzystencją."

Gosia Herba
Poland

AMR is undermining animal health and welfare
Gosia Herba

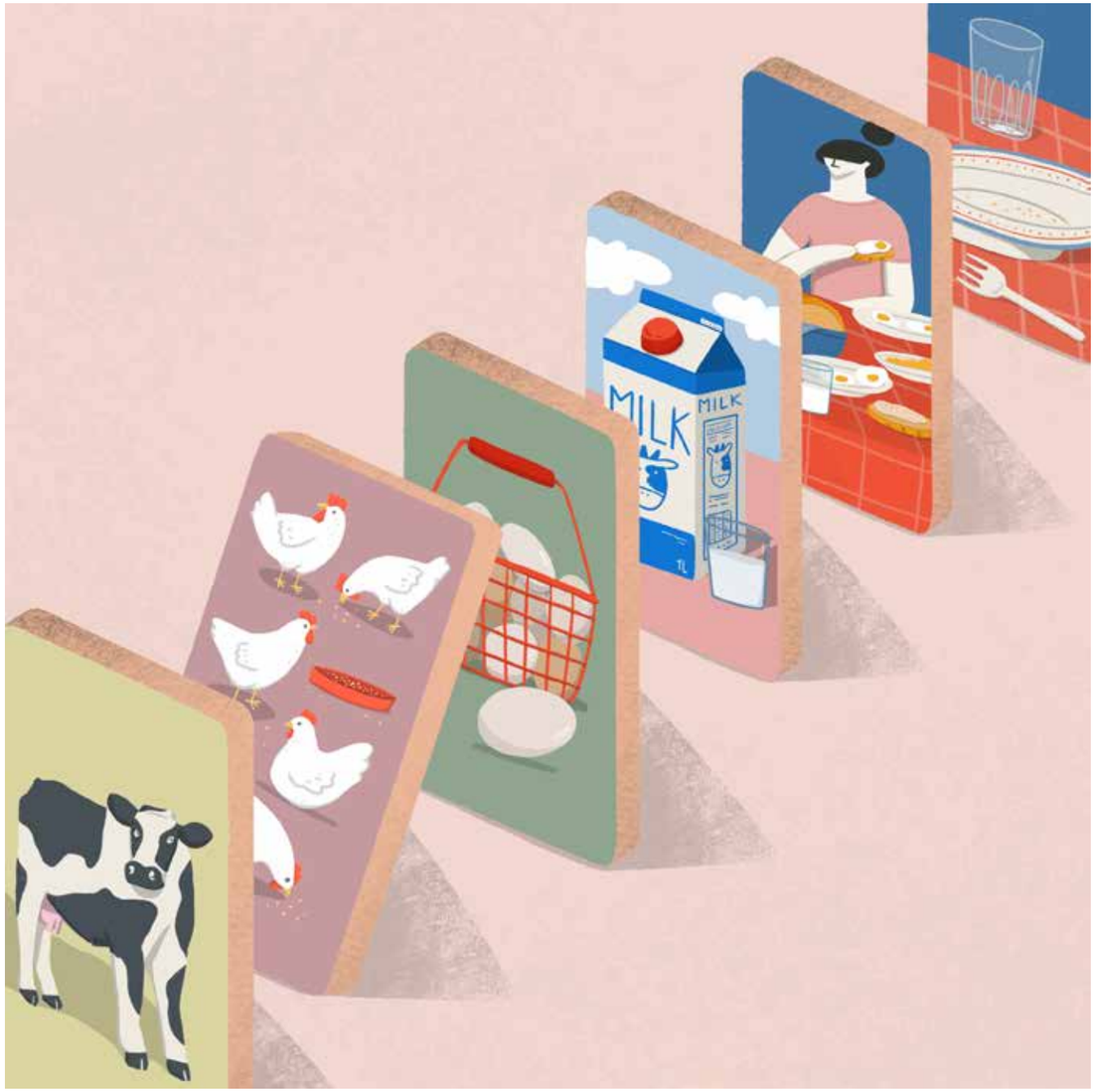
12 AMR is putting food security at risk

Resistant infections in food-producing animals also mean more expensive treatments, lower productivity, and serious implications for food security. If we don't act now, by 2050 AMR will be responsible for animal production losses equivalent to the consumption needs of more than 2 billion people annually. That's approximately 1 in 5 of the world's projected population.

"The domino metaphor highlights how antimicrobial resistance can destabilise the entire food chain. When resistance emerges, the impacts ripple outward, from food production to the meals on our tables. The falling piece emphasises that unchecked AMR could leave gaps in global nourishment, threatening food security and the wellbeing of billions. This chain reaction shows how fragile the system is. Once one block falls, the rest quickly follow."

"Metafora domina ukazuje, ako môže antimikrobiálna rezistencia narušiť rovnováhu v celom potravinovom reťazci. Keď sa rezistencia objaví, jej dôsledky sa šíria ďalej. Od produkcie potravín až po jedlo na našich stoloch. Padajúci dielik ukazuje, že ak sa AMR nebude riešiť, môžu v globálnom zásobovaní potravinami vzniknúť vážne medzery a ohroziť potravinovú bezpečnosť a zdravie miliárd ľudí. Tento domino efekt ukazuje, aký krehký je celý systém. Stačí, aby padol jeden dielik, a ostatné začnú padať tiež."

Zuzu Galova
Slovakia



AMR is putting food security at risk
Zuzu Galova

13 AMR affects our pets too

Resistant bacteria and other superbugs can infect our dogs, cats and other companion animals severely compromising their health. In some cases, pets may need stronger or longer treatments, which can be costly and stressful. These resistant microbes can also pass between companion animals and humans (in both directions), reminding us how closely our health is connected.

"We love our pets, and they are like family! The closer we live together with our companion animals, the more mindful we need to be about hygiene. This illustration visualises numerous ways in which we connect with our pets, both emotionally and physically. This way resistant microbes can easily move back and forth between us."

"We houden van onze huisdieren, ze zijn als familie voor ons! Hoe intensiever we samenleven met onze huisdieren, hoe meer aandacht we moeten besteden aan hygiëne. Deze illustratie laat op verschillende manieren zien hoe we emotioneel en fysiek verbonden zijn met onze huisdieren. Hierdoor kunnen resistente microben gemakkelijk tussen ons heen en weer bewegen."

Bodil Jane
Netherlands

AMR affects our pets too
Bodil Jane

14 AMR is spreading in nature

Antimicrobial residues, resistant microbes and resistance genes enter nature through human activities such as wastewater from hospitals, runoff from farms, industrial pollution, or improper disposal of unused medicines. Proper management of these residues is essential to prevent them from returning to humans and animals through food, water or direct contact with soil, increasing the risk of transmission.

“My illustration, painted by hand with acrylic paints, emphasizes the innocence and purity of nature, as well as its vulnerability to antimicrobial resistance. It emphasizes how human activity, and improper disposal of pharmaceutical waste, can silently spread resistant microbes into our environment.”

“Käsin akryyliväreillä maalaamani kuvitus kuvaa luonnon viattomuutta ja puhtautta sekä sen haavoittuvuutta mikrobilääkeresistenssille. Se kertoo, miten ihmisen toiminta ja lääkejätteiden väärä hävittäminen voivat hiljalleen levittää resistenttejä mikrobeja ympäristöömme.”

Matti Pikkujämsä
Finland

AMR is spreading in nature
Matti Pikkujämsä

15 AMR reaches even the wildest places

Resistant bacteria and other microbes have been found in birds, fish and wild mammals even in remote natural areas. This shows how superbugs can move through ecosystems which can act as storages of resistance that may spill back into humans or other animals.

"We often view the wilderness as a closed system that is not linked to our own busy living within cities and human dwellings, as if these are separate circles of life coexisting, but never overlapping, especially in terms of health.

The depicted snow globe offers the illusion of this impenetrable system, a setting we can neither access nor change at first glance. However, once the globe is shaken, snowflakes will appear, and their whirlwind is influenced by an outside source that changes everything. The snow globe is cracked, to emphasize how these ecosystems are not, in fact, as separate as they seem."

"Divljinu često doživljavamo kao zatvoreni sustav koji nije povezan s našim užurbanim životom u gradovima i naseljima, kao da se radi o odvojenim sustavima koji koegzistiraju, ali se nikada ne preklapaju, posebice po pitanju zdravlja.

Prikazana snježna kugla nudi iluziju tog neprobojnog sustava, okruženja kojem na prvi pogled ne možemo pristupiti niti ga promijeniti. Međutim, kada protresemo kuglu, utječemo na lepršanje pahuljica snijega, a taj utjecaj rezultat je vanjske sile koja sve mijenja. Snježna kugla je napuknuta, kako bih naglasila da ti ekosustavi zapravo nisu toliko odvojeni koliko se čini."

Anja Sušanj
Croatia

AMR reaches even the wildest places
Anja Sušanj

16 Antimicrobials are precious medicines and must be handled with care

Antibiotics and other antimicrobials are essential to protect our health. However, in too many cases, antimicrobials are misused or overused in people, animals and plants, creating ideal conditions for superbugs to emerge. When used improperly, antimicrobials can do more harm than good. By using them only when truly necessary, and always under professional guidance, we can slow down the emergence and spread of superbugs, and protect the health of humans, animals, plants and the environment.

"In this illustration, the antibiotic is treated like a masterpiece on display in a museum, much like the Mona Lisa at the Louvre. Crowds gather to admire it, in awe at its timeless beauty, its priceless value and the care it requires. Just as we cherish great works of art for the future, we must also safeguard these life-saving medicines. Scientists, like great artists, are the creators of these treasures, and it is our responsibility to protect their work, so that its value endures for generations to come."

Hugo van der Ding
Portugal

"Nesta ilustração, o antibiótico é tratado como uma obra-prima em exposição num museu, tal como a Mona Lisa no Louvre. Multidões reúnem-se para admirá-lo, maravilhadas com a sua beleza intemporal, o seu valor inestimável e os cuidados que requer. Assim como valorizamos as grandes obras de arte para o futuro, também devemos proteger estes medicamentos que salvam vidas. Os cientistas, tal como os grandes artistas, são os criadores destes tesouros, e é nossa responsabilidade proteger o seu trabalho, para que o seu valor perdure para as gerações vindouras."

Antimicrobials are precious medicines and must be handled with care
Hugo van der Ding

17 Antimicrobials must only be taken with medical advice

Antibiotics and other antimicrobials should only be taken when prescribed by a doctor or a qualified health professional, and always following the instructions provided. Using them without medical advice can be harmful and may help resistant microbes to develop.

"I was inspired by Eastern European modernist murals and mosaics that adorn public buildings such as hospitals, schools, and similar institutions. The open hands and falling pills refer to antibiotic overuse. The two figures show a doctor writing a prescription and a patient, accompanied by the AMR symbol, to remind us that antimicrobials should only be used on the recommendation of a physician."

"Inspirovaly mě modernistické nástěnné malby a mozaiky z východní Evropy, které zdobí veřejné budovy, jako jsou nemocnice, školy a podobné instituce. Otevřené ruce a padající pilulky odkazují na nadužívání antibiotik. Dvě postavy představují lékaře, který píše recept, a pacienta, doprovázené symbolem AMR, aby připomínaly, že antimikrobiální látky by měly být používány pouze na doporučení lékaře."

Jan Šrámek
Czesch Republic

Antimicrobials must only be taken with medical advice
Jan Šrámek

18 Stopping an antimicrobial treatment too soon gives harmful microbes a second chance

When we skip doses or stop an antimicrobial treatment too soon because we are feeling better, the strongest microbes may survive, make us sicker, and spread to others increasing the risk of getting infected by superbugs that are harder to treat for everyone.

"Medicines should be taken exactly as prescribed, at the right time and for the full duration of treatment. Consistency and following the instructions are key to protecting both, personal health and the effectiveness of antimicrobials.

The illustration conveys this message by depicting a person taking a pill across six distinct steps. Reminiscent of a step by step instruction guide, the sequence emphasizes careful adherence to medication routines."

Max Guther
Germany

"Medikamente sollten genau wie verschrieben, zur richtigen Zeit und über die gesamte Behandlungsdauer eingenommen werden. Die konsequente Einhaltung der Anweisungen ist entscheidend für den Schutz der persönlichen Gesundheit und die Wirksamkeit von Antibiotika.

Die Illustration vermittelt diese Botschaft, indem sie eine Person zeigt, die eine Tablette in sechs verschiedenen Schritten einnimmt. Die Abfolge erinnert an eine Schritt-für-Schritt-Anleitung und betont die sorgfältige Einhaltung der Einnahmevorschriften."

Stopping an antimicrobial treatment too soon gives harmful microbes a second chance
Max Guther

19 Antibiotics do not work for viral infections such as flu

Antibiotics are a type of antimicrobial made to fight bacteria, not viruses. They cannot help with colds, flu or most sore throats. Taking them when we do not need them does not get us better, it just gives the bacteria living in our bodies a chance to become resistant microbes harder to treat.

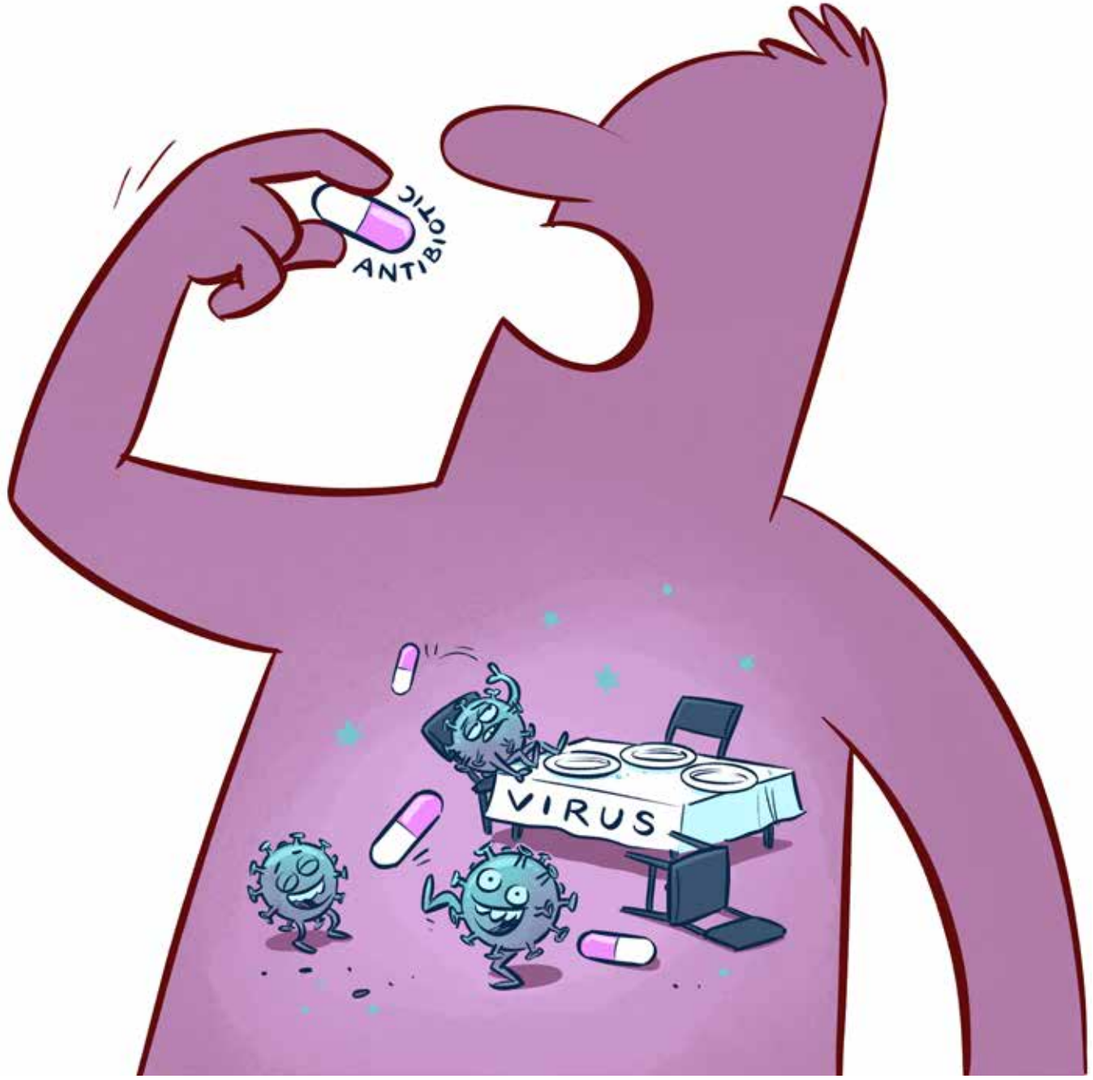
"It is important to understand that antibiotics have no effect on viruses, but only on bacteria. Therefore, they should be used responsibly and only when necessary.

I somehow had a restaurant scene in my head. I imagined viruses meeting antibiotics at the dinner table. If anyone thinks they can feed viruses with antibiotics, like something very unpleasant, they are mistaken. Viruses don't even know what to do with them."

"Ir svarīgi saprast, ka antibiotikas neietekmē vīrusus, bet tikai baktērijas. Tāpēc tās jālieto atbildīgi un tikai tad, kad tas ir nepieciešams.

Man kaut kā prātā ienāca restorāna aina. Es iedomājos, kā vīrusi sastopas ar antibiotikām pie vakariņu galda. Ja kāds domā, ka vīrusus var „barot" ar antibiotikām, lai tiem kaitētu, tad viņš kļūdās. Vīrusi pat nezina, ko ar tām iesākt."

Gatis Šļūka
Latvia



Antibiotics do not work for viral infections such as flu
Gatis Šļūka

20 Healthy farm animals do not need antimicrobials

When we focus on good farming practices —such as maintaining clean and comfortable conditions, ensuring proper nutrition, and providing appropriate vaccinations— we avoid the need for antibiotics and other antimicrobials. By prioritising animal health and welfare, we can preserve the effectiveness of these medicines without compromising livestock productivity.

"I drew a sheep living its best life, the way all animals should. A politician, a protester, a farmer, and an "ordinary person" symbolize that we can all contribute. Through good consumer habits, political action, and good farming practices, we can work together to ensure that our farm animals are healthy, happy, and do not need antibiotics. Good for animals. Good for us too because this means that antibiotics are more likely to work when we need them."

"Jeg tegnet en sau som lever sitt beste liv, slik alle dyr burde gjøre. En politiker, en demonstrant, en bonde og en «vanlig person» symboliserer at vi alle kan bidra. Gjennom gode forbrukervaner, politisk handling og gode jordbruksmetoder kan vi samarbeide for å sikre at husdyrene våre er sunne, lykkelige og ikke trenger antibiotika. Det er bra for dyrene. Det er også bra for oss, fordi det betyr at antibiotika har større sjanse for å virke når vi trenger det."

Hanne Sigbjørnsen Tegnehanne
Norway

Healthy farm animals do not need antimicrobials
Hanne Sigbjørnsen Tegnehanne

21 Good care helps avoid antimicrobial use in pets

Caring for our pets through good practices such as regular check-ups, clean shelter, proper hygiene, good nutrition and vaccination helps prevent infections before they start. This reduces the need for antibiotics and other antimicrobials and lowers the risk of superbugs and resistant microbes emerging.

"A little bit of love and care goes a long way for our pets. Everyday habits, such as brushing, clean spaces, good nutrition, and keeping up with check-ups and vaccinations - help keep our pets healthy, happy and avoid the need for antibiotics."

"Že malo ljubezni in pozornosti naredi ogromno za naše ljubljenčke. Z vsakodnevnimi navadami, kot so redno krtačenje, skrb za njihovo čisto okolje, kakovostna prehrana ter redni pregledi in cepljenja, poskrbimo, da ostanejo zdravi, veseli in brez potrebe po antibiotikih."

Alja Horvat
Slovenia

Good care helps avoid antimicrobial use in pets
Alja Horvat

22 Veterinarians help protect everyone's health

Veterinarians play a key role in using antibiotics and other antimicrobials wisely and protecting public health. Antimicrobials should only be given to animals when prescribed by a veterinarian and should be used according to the recommended instructions.

"I found it funny to think about how the concept of "bacteria" is completely incomprehensible and foreign to animals. And when I thought about it more, I realized the concept is kind of incomprehensible to me too. I know they're there —but only because people smarter than me told me so. So, I put myself in the animals' place and drew this picture."

"Mér fannst það fyndið að hugsa um að hugtakið „bakteríur" er algjörlega óskiljanlegt og framandi fyrir dýr. Og þegar ég hugsaði meira um það, áttaði ég mig á því að þetta hugtak er eiginlega óskiljanlegt fyrir mig líka. Ég veit að þær eru til —en aðeins vegna þess að fólk, sem er gáfaðra en ég, sagði mér það. Svo ég setti mig í spor dýranna og teiknaði þessa mynd."

Hugleikur Dagsson
Iceland

Veterinarians help protect everyone's health
Hugleikur Dagsson

23 Clean hands save lives

Washing our hands regularly —before cooking or eating, or after using the toilet, touching animals or being outdoors— helps stop infections before they start. No matter where we are —at home, in healthcare settings, on farms, in schools or in kitchens— good hand hygiene is a simple but powerful way to protect people, animals and our shared health.

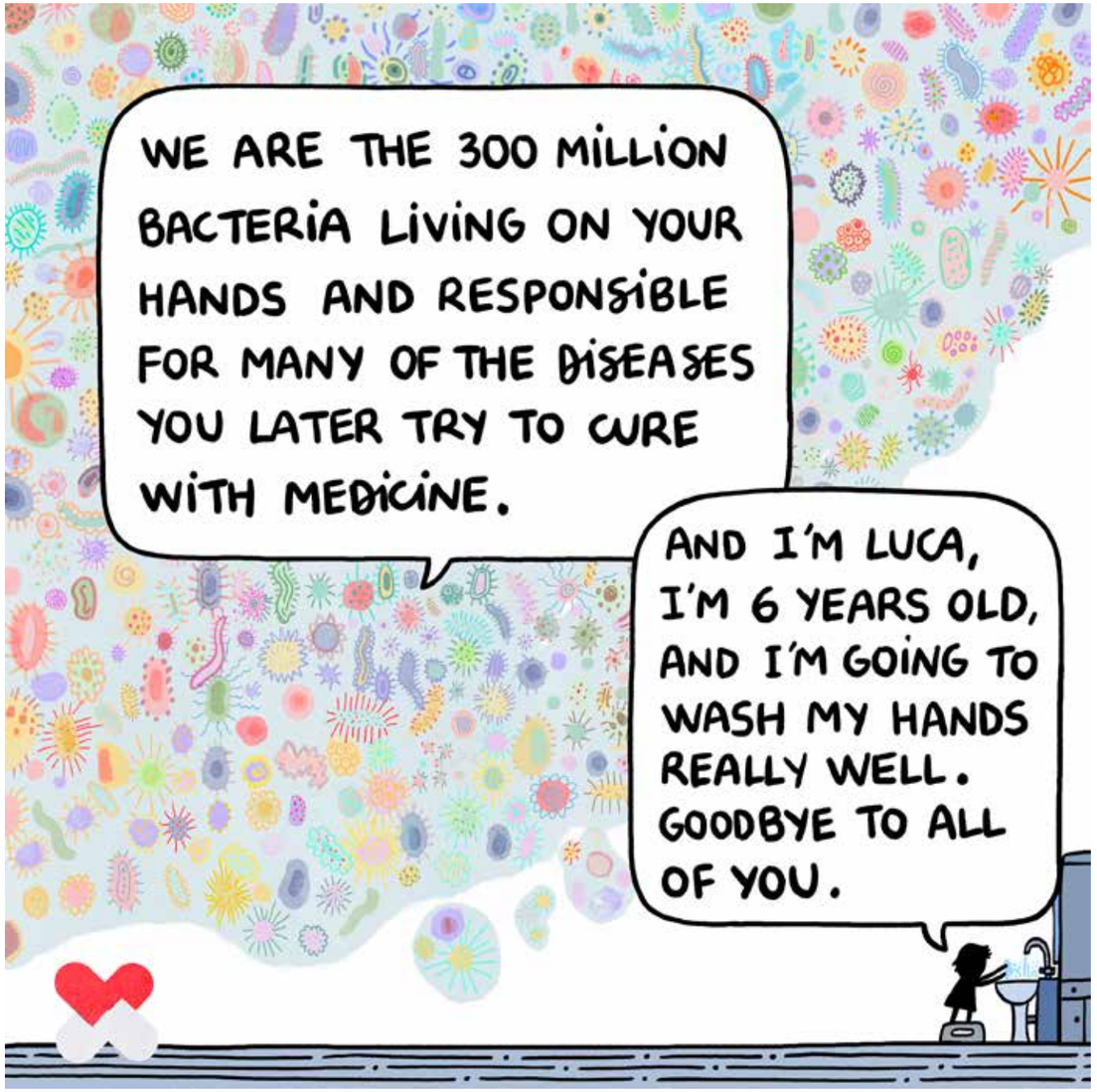
"We are the 300 million bacteria living on your hands — and we're responsible for many of the diseases you later try to cure with medicine." "And I'm Luca, I'm 6 years old, and I'm going to wash my hands really well. Goodbye to all of you."

"The importance of handwashing is something so ordinary that it almost seems unbelievable how much it can help solve such a big problem. I liked the idea of including one of my children talking to the 300 million microorganisms we have on our dirty hands. He represents the entire European population, and I believe he does so brilliantly."

"Somos las 300 millones de bacterias que estamos en tus manos y las responsables de muchas de las enfermedades que luego queréis curar con medicamentos." "Y yo Luca, tengo 6 años y me voy a lavar bien las manos. Adiós a todas."

"La importancia de lavarse las manos es algo tan cotidiano que parece mentira que pueda ayudar tanto a eliminar un problema tan grande. Me gustó la idea de incluir a uno de mis hijos hablando con 300 millones de microorganismos que tenemos en las manos sucias. Representa a toda la población europea y creo que lo hace muy bien."

72 kilos
Spain



Clean hands save lives
72 kilos

24 Safe food habits, fewer infections

Simple habits like washing our hands before and during food preparation, using clean surfaces and utensils, separating raw and cooked items to avoid contamination, cooking meat, poultry, eggs and seafood thoroughly, keeping perishable foods refrigerated and washing fruits and vegetables well prevent infections, reduce the need for antimicrobials, and lower the chance for resistant microbes to develop.

"Simple cooking habits can help avoid superbugs. I gathered all the actions in one illustration to remind ourselves what we should wash before cooking: hands, utensils, surfaces, and vegetables. A mini cleaning team takes care of each item, to help us have better health."

Cécile Dormeau
France

"De simples habitudes culinaires peuvent aider à éviter les superbactéries. J'ai rassemblé toutes les actions dans une illustration afin de nous rappeler ce que nous devons laver avant de cuisiner : les mains, les ustensiles, les surfaces et les légumes. Une mini-équipe de nettoyage s'occupe de chaque élément, afin de nous aider à être en meilleure santé."

Safe food habits, fewer infections
Cécile Dormeau

25 Vaccines prevent infections and reduce the spread of superbugs

Fewer illnesses mean less need for antibiotics or other antimicrobials, and fewer opportunities for superbugs to emerge. In both human and animal health, vaccines reduce the need for treatment and help stop the spread of diseases.

"Vaccines act like a light in the darkness. When fewer people or animals get sick, there's less need to use antibiotics or other medicines. This means fewer chances for resistant microbes to shade everyone's health."

"Вакцини діють як світло в темряві. Коли менше людей або тварин хворіють, зменшується потреба у використанні антибіотиків та інших ліків. Це означає, що зменшується ймовірність того, що резистентні мікроби зашкодять здоров'ю всіх."

Sergiy Maidukov
Ukraine

Vaccines prevent infections and reduce the spread of superbugs
Sergiy Maidukov

26 When sick, keeping distance makes a difference

Habits like wearing a mask or staying home when ill, help reduce the spread of infections. This means fewer medical appointments for your loved ones and co-workers, fewer antimicrobial prescriptions, and fewer opportunities for resistant bacteria and other superbugs to develop. These contact precautions when ill also apply to the animals we live with or work with, as some resistant microbes can pass between humans and animals in both directions.

"Think about the choices you have when feeling sick: Wearing a mask, staying at home, washing hands... so the sickness doesn't spread, and a reduced usage of antibiotics is needed.

On the other hand, shaking hands and maintaining close contact can spread bacteria and lead to a higher usage of antibiotics. As a result, there is a higher risk of resistant bacteria developing and spreading. The difference between the two options is like night and day."

Ana Popescu
Austria

"Denken Sie über die Möglichkeiten nach, die Sie haben, wenn Sie sich krank fühlen: Eine Maske tragen, zu Hause bleiben, Hände waschen ... damit sich die Krankheit nicht ausbreitet und weniger Antibiotika eingesetzt werden müssen.

Andererseits können Händeschütteln und enger Kontakt zur Verbreitung von Bakterien führen und einen höheren Einsatz von Antibiotika erforderlich machen. Infolgedessen besteht ein höheres Risiko, dass resistente Bakterien entstehen und sich ausbreiten. Der Unterschied zwischen den beiden Optionen ist wie Tag und Nacht."

When sick, keeping distance makes a difference
Ana Popescu

27 Do not share antimicrobials

Never take an antimicrobial prescribed for someone else unless you have consulted a healthcare provider, and never give your medicine to a pet. Each prescription is tailored to a specific infection and individual. Using the wrong treatment can delay your recovery, cause side effects, and promote the development of resistant microbes that are harder to treat.

"This illustration explores how treatment is always tailored to the individual. The two portraits blend into one another, yet their surroundings are very different: one features dry branches, representing misuse and the harm it can bring, while the other showcases flourishing flowers, symbolising the right treatment and the peace and healing it provides. The contrast highlights that what works for one may not work for another. Medicine is a personal matter and should never be shared."

Alfie Gatt
Malta

"Din l-illustrazzjoni tesplora kif it-trattament dejjem ikun imfassal apposta għal kull individwu. Iż-żewġ ritratti jingħaqdu ma' xulxin, iżda l-ambjent ta' madwarhom huwa differenti ħafna: wieħed juri friegħi niexfa, li jirrappreżentaw l-użu ħażin u l-ħsara li jista' jġib miegħu, filwaqt li l-ieħor juri fjuri fil-fjuri, li jissimbolizzaw it-trattament xieraq u l-paċi u l-fejqan li jġib. Il-kuntrast jenfasizza li dak li jaħdem għal persuna waħda jista' ma jaħdimx għal oħra. Il-mediċina hija kwistjoni personali u qatt m'għandha tinqasam."

Do not share antimicrobials
Alfie Gatt

28 Dispose leftovers properly

Improper disposal of antimicrobials harms the environment and may contribute to the spread of resistance and the emergence of superbugs. Do not keep unused or expired antimicrobials; do not throw them in the trash, nor flush them down the toilet. Take them to a pharmacy or follow your local guidance for safe disposal.

"Just flush the antimicrobials down the toilet, EVA!" "Don't waste time going to the pharmacy - throw the medicine in the trash, EVA!" "This Superbug is on you, John!!"

"This is a classic satirical drawing. Instead of warning about what not to do, I wanted to show what happens when you do it, through an ordinary household conversation boiled down to one sentence."

Anders Morgenthaler
Denmark

"Bare skyld detder antimicrobial ned i toilettet EVA!!" Du behover ikke gá ned til apoteket. Bare smid medicinen I skraldespanden EVA!" Den her SUPERBUG ejer du John!!

"Dette er en klassisk satirisk tegning. I stedet for at advare om, hvad man ikke skal gøre, ønskede jeg at vise, hvad der sker, når man gør det, gennem en almindelig samtale i hjemmet, der er kogt ned til én sætning."

Dispose leftovers properly
Anders Morgenthaler

29 Responsible use of antimicrobials in plant and crop care matters

Fungicides, weed killers and other pesticides are used to protect plants from pests. Besides, in some countries, antimicrobials are used as growth promoters. Research shows that this practice can promote resistant microbes. Limiting use, regulating it carefully, and combining it with good farming methods help protect the environment and keep these vital products effective.

"This illustration shows the contrast between, on the one hand, the monoculture of large scale industrial farming where pesticides are commonly used and, on the other hand, the beauty of small scale agriculture where a multitude of species are allowed to coexist."

"Denna bild visar kontrasten mellan å ena sidan monokulturen i storskaligt industriellt jordbruk där bekämpningsmedel används i stor utsträckning, och å andra sidan skönheten i småskaligt jordbruk där en mångfald av arter får samexistera."

Sara Andreasson
Sweden

Responsible use of antimicrobials in plant and crop care matters
Sara Andreasson

30 Trusting in science is key to curbing the spread of antimicrobial resistance

When we trust scientific evidence and act on it, we help build a more informed and responsible society. Supporting research, innovation, and joint efforts across human, animal and environmental health is essential to reduce antimicrobial resistance.

"My illustration talks about the entire ecosystem we need to care for, from our urban life to rural life, the need to protect and regenerate nature, responsible fishing, the importance of the veterinarian... and scientific research and discoveries that are made to protect us all."

"Ilustrația mea vorbește despre întregul ecosistem de care trebuie să avem grijă, de la viața urbană la cea rurală, despre necesitatea de a proteja și regenera natura, pescuitul responsabil, importanța medicului veterinar... și cercetarea științifică și descoperirile care sunt făcute pentru a ne proteja pe toți."

Loreta Isac
Romania

Trusting in science is key to curbing the spread of antimicrobial resistance
Loreta Isac

Love our antibiotics, spread the word and inspire others to act!

Antibiotics and other antimicrobials rank among humanity's greatest achievements. These precious medicines have helped both humans and animals live longer, healthier lives. But they are losing their effectiveness. The more people understand why, the more we can do together to preserve their power. By sharing what we know and supporting responsible use, we help ensure these life-saving tools remain effective —for ourselves, for future generations, and for the planet. Join the global community of AMR Symbol Ambassadors! LOVE OUR ANTIBIOTICS!

Global AMR Symbol by David Ljungberg

Glossary

AMR (Antimicrobial Resistance)
The ability of microbes -such as bacteria, viruses, fungi, or parasites- to survive and continue growing even when exposed to medicines that are designed to kill them or stop their growth.

Antibiotics
Medicines that slow down the growth or destroy bacteria, used to treat infections like pneumonia, urinary tract infections, or other infections caused by bacteria. They do not work against viruses.

Antimicrobial
A general term for any substance that inhibits the growth or kills microbes, including bacteria, viruses, fungi, and parasites. Antibiotics, antivirals, antifungals, and antiparasitics are all antimicrobials.

DNA exchanges
Processes through which microbes share genetic material with one another, often spreading traits such as resistance to antibiotics.

Fungicides
Chemical or biological substances that prevent the growth or kill fungi. They are commonly used in agriculture to protect crops from fungal diseases.

Microbes
Microscopic living organisms, including bacteria, viruses, fungi, and parasites. They exist everywhere: on our skin, in our bodies, and throughout the environment.

One Health
An approach recognizing that the health of humans, animals, and the environment are interconnected. It promotes collaboration across sectors to achieve better public health outcomes.

Pathogens
Microbes that cause disease in humans, animals, or plants. Examples include certain bacteria, viruses, fungi, and parasites.

Productivity
The rate at which goods, crops, or livestock are produced. In health and agriculture, it can refer to the efficiency and output of systems affected by infections or antimicrobial resistance.

Resistant bacteria
Bacteria that have developed the ability to survive or multiply despite being exposed to one or more antibiotics that would normally kill them.

Resistant genes
Genes that give microbes the ability to resist the effects of antimicrobial medicines. These genes can be passed between different microbes through DNA exchange.

Resistant infections
Infections caused by microbes that no longer respond to standard treatments, making them harder to cure and increasing the risk of complications or death.

Resistant microbes
Microbes -such as bacteria, viruses, or fungi- that have adapted to withstand medicines meant to kill them.

Superbug
A nickname for microbes that are resistant to multiple antimicrobials, making them particularly difficult to treat with existing medicines.

This illustrated book is an invitation to discover the beauty of a balanced microbial world and the power we hold to preserve it. Each illustration and message tells a piece of this shared story, one that belongs to all of us. Because loving our antibiotics means loving life itself.

EU-JAMRAI
Joint Action
Antimicrobial Resistance and
Healthcare-Associated Infections

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the European Union