

# THE ADVENTURES OF NANJALA AND OTIENO

Discovering Antibiotic Resistance



This comic is published as part of a project raising awareness of antibiotic resistance, supported by the Economic and Social Research Council of UK Research and Innovation (Supporting Evidence-Based Policy: a longitudinal study of AMR risk behaviours among livestock keeping communities in India and Kenya, project number ES/P00492X/2).

Antibiotics are medicines which are used to treat bacterial infections. Bacteria can make both people and animals sick in many ways, including skin infections, chest infections, eye infections and some types of diarrhoea.

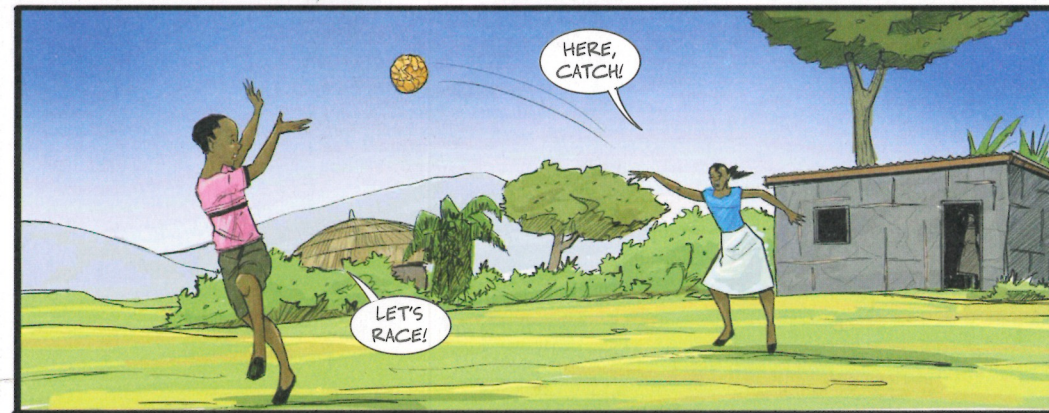
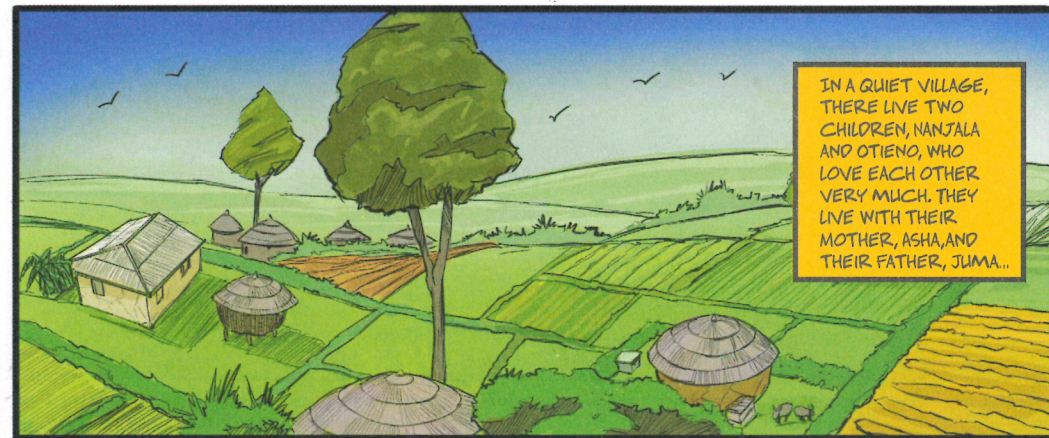
Bacteria can become antibiotic-resistant, which means they are able to stop antibiotics working against them. This means the infections that the bacteria cause are harder to treat. This is a problem which can affect anyone, living in any country, all around the world.

In this comic you can follow Nanjala as she learns all about antibiotic resistance, including the causes and some of the actions that can be taken to help fight this challenge. We hope that Nanjala's amazing journey will inspire all children reading this comic to spread the important messages about how to use antibiotics safely, helping to fight the threat of antibiotic resistance!

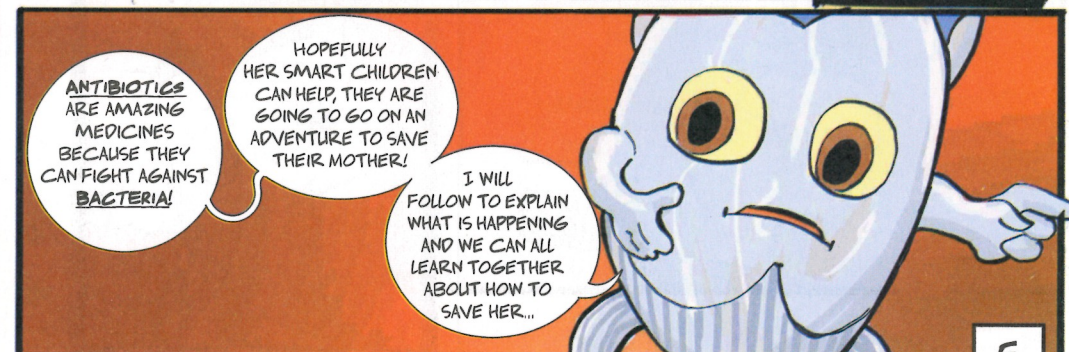
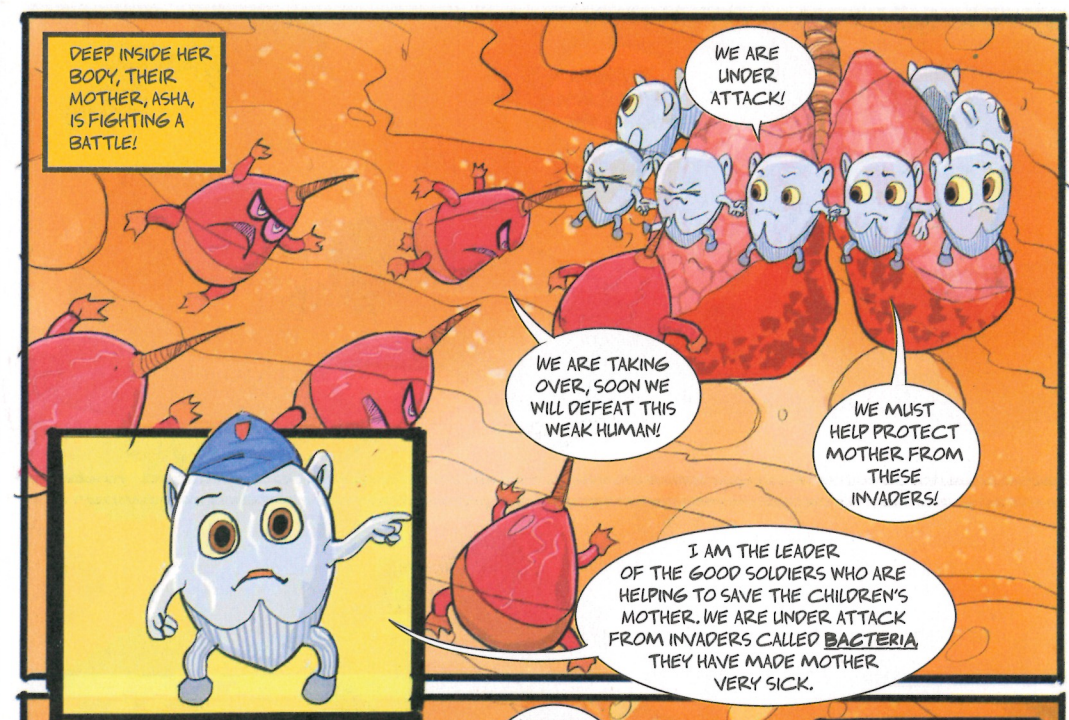
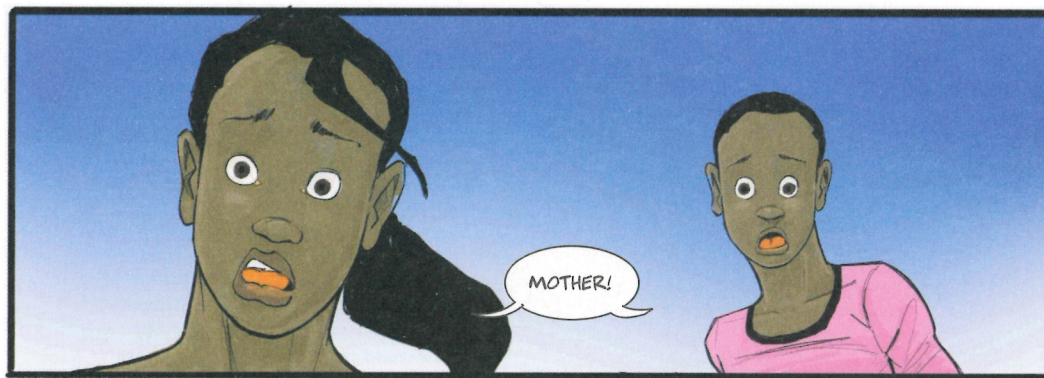
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Illustrator: Joe Barasa











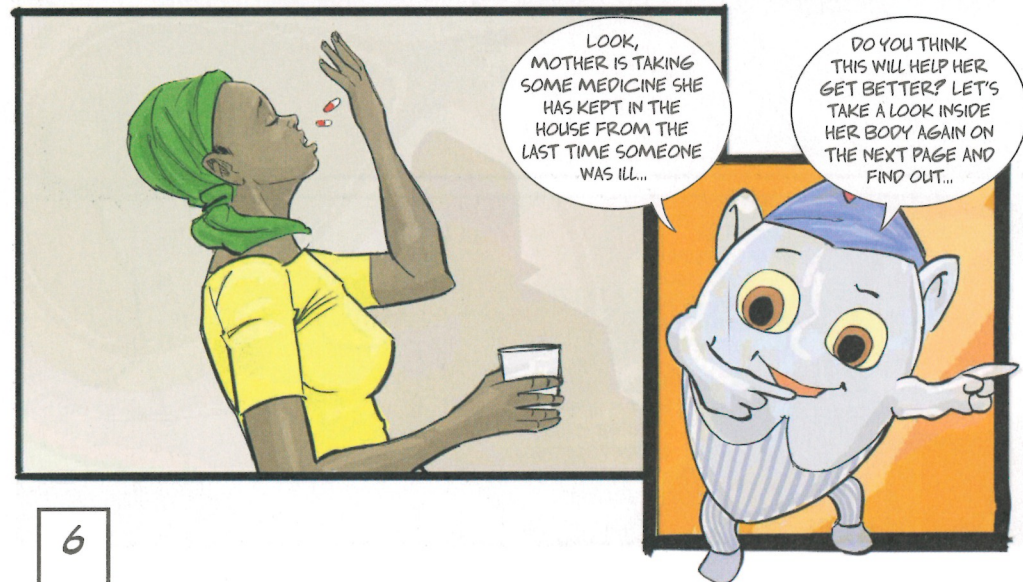
MEANWHILE, OUTSIDE THE BODY, MOTHER HAS AN IDEA ABOUT WHAT MIGHT HELP HER GET BETTER...

CHILDREN, PLEASE CAN YOU BRING ME THE BOX OF MEDICINES FROM THE SHELF?



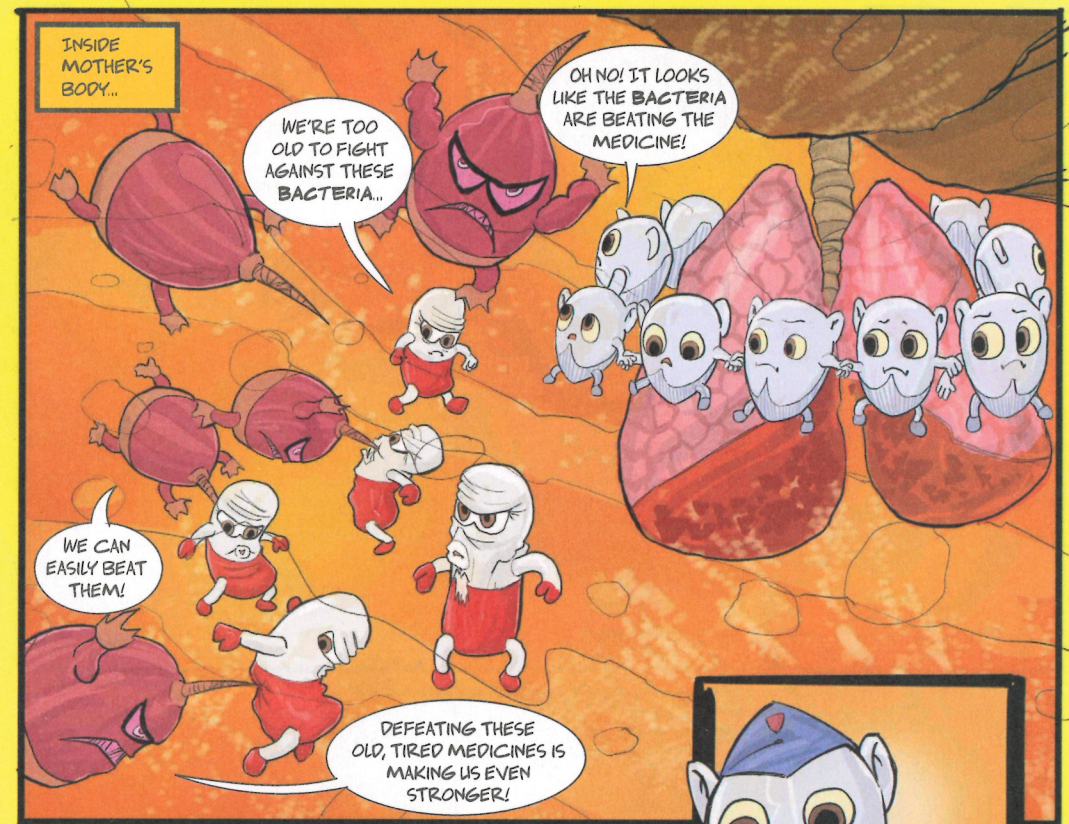
WHAT ARE THESE? WILL THEY MAKE HER BETTER?

I DON'T KNOW, BUT I THINK I SAW FATHER TAKE SOME OF THEM A LONG TIME AGO. MAYBE THEY WILL HELP HER TOO?



LOOK, MOTHER IS TAKING SOME MEDICINE SHE HAS KEPT IN THE HOUSE FROM THE LAST TIME SOMEONE WAS ILL...

DO YOU THINK THIS WILL HELP HER GET BETTER? LET'S TAKE A LOOK INSIDE HER BODY AGAIN ON THE NEXT PAGE AND FIND OUT...



INSIDE MOTHER'S BODY...

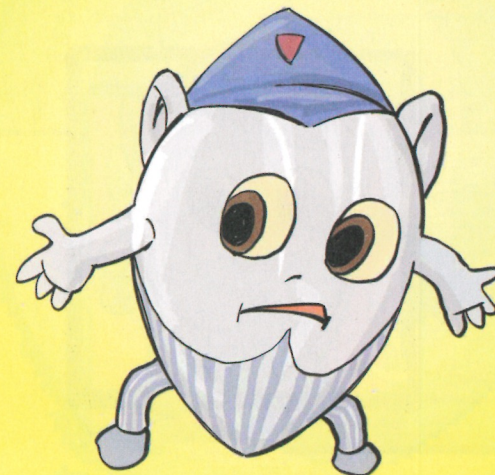
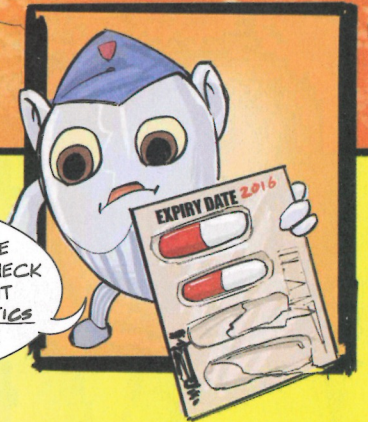
WE'RE TOO OLD TO FIGHT AGAINST THESE BACTERIA...

OH NO! IT LOOKS LIKE THE BACTERIA ARE BEATING THE MEDICINE!

WE CAN EASILY BEAT THEM!

DEFEATING THESE OLD, TIRED MEDICINES IS MAKING US EVEN STRONGER!

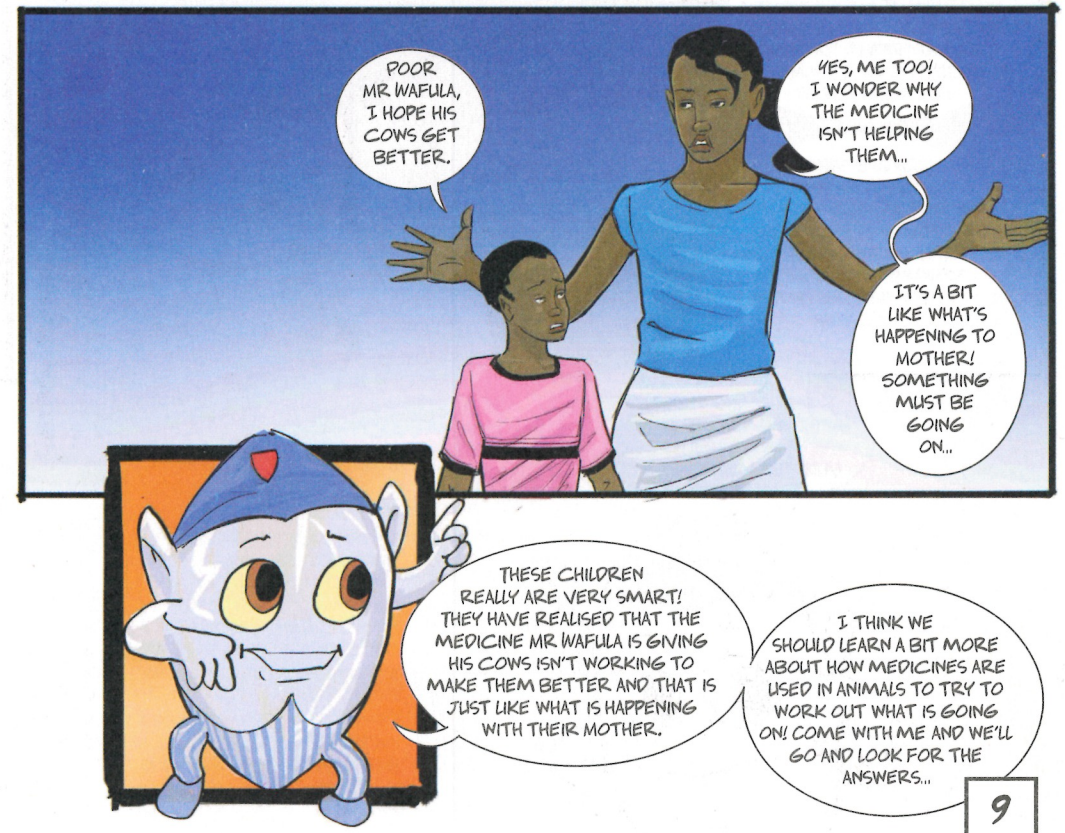
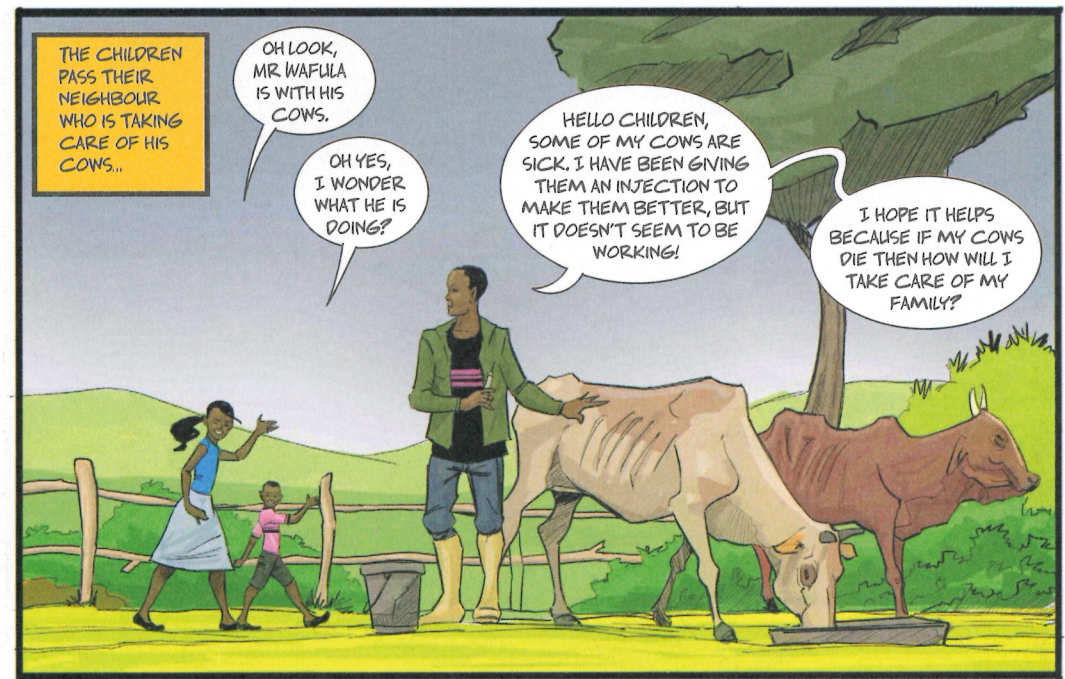
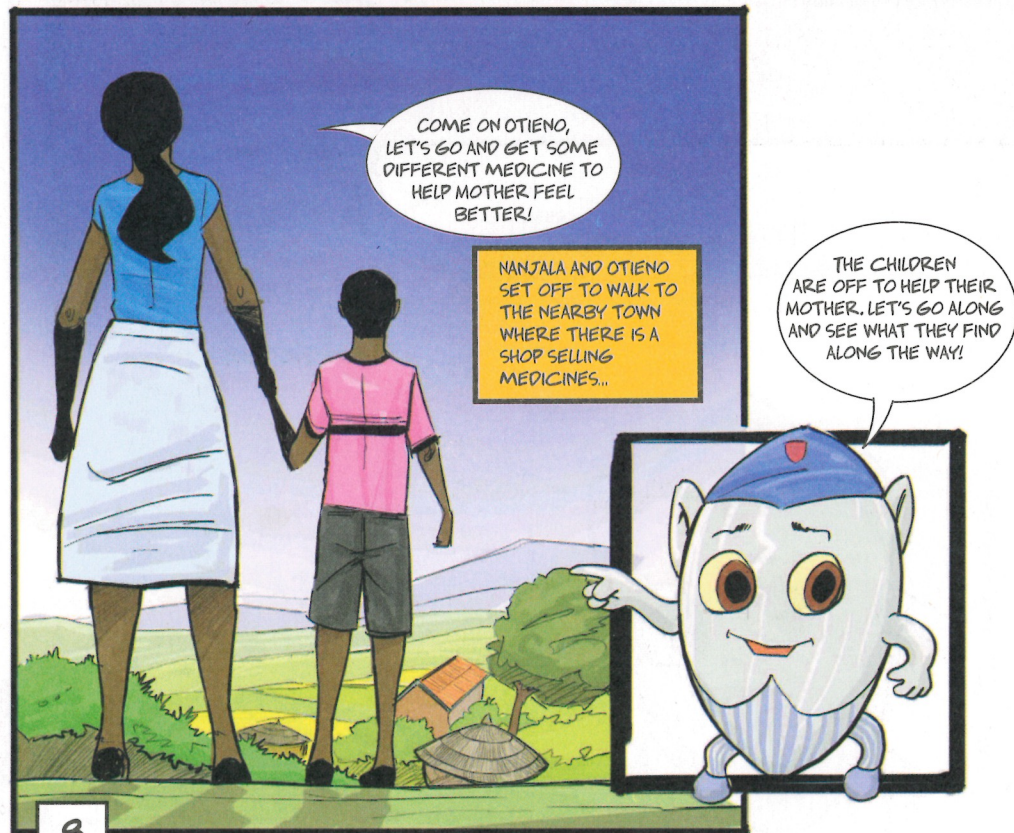
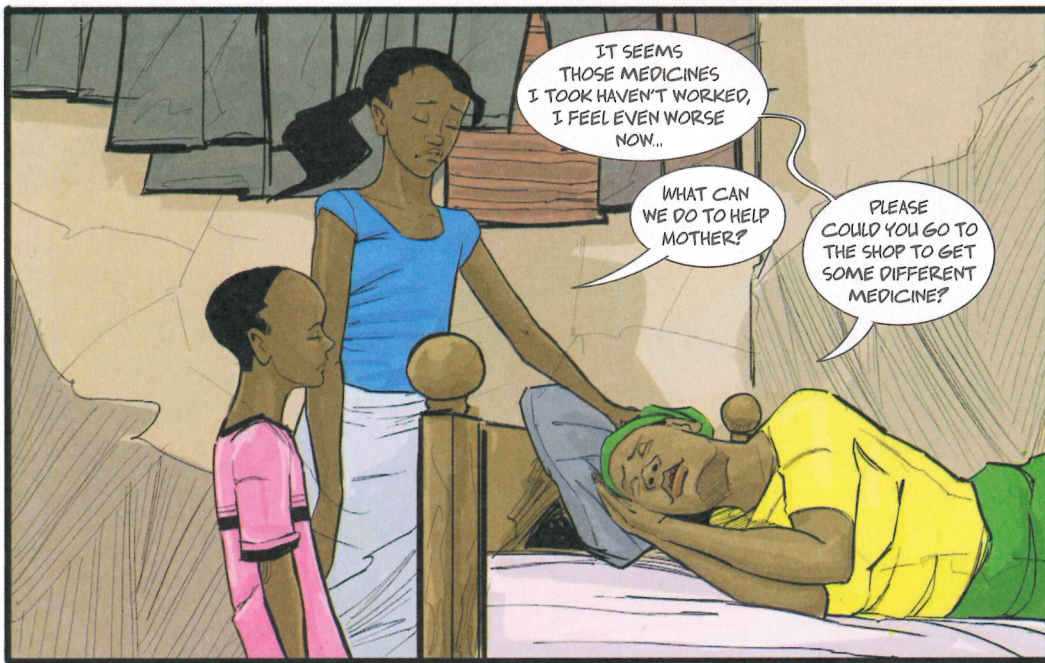
REMEMBER WHEN MOTHER TOOK THOSE TABLETS? SHE FORGOT TO CHECK THE DATE ON THE BOX AND IT SHOWS THAT THESE ANTIBIOTICS ARE OLD AND DON'T WORK ANYMORE.



TAKING THOSE OLD MEDICINES HAS ACTUALLY HELPED THE BACTERIA TO GROW EVEN STRONGER!









A LITTLE FURTHER ON, THE CHILDREN MEET ONE OF THE VILLAGE ELDERS ON HIS WAY TO MARKET...

HELLO CHILDREN, WHERE ARE YOU GOING? YOU LOOK WORRIED.

WE ARE GOING TO BUY MEDICINE FOR OUR MOTHER WHO IS SICK.

WE ALREADY GAVE HER SOME AT HOME BUT IT DIDN'T WORK.

THEN WE SAW MR WAFULA AND HE IS HAVING THE SAME PROBLEM WITH HIS COWS. WE DON'T KNOW WHAT IS GOING ON!



I DON'T KNOW EXACTLY WHAT IS CAUSING THIS PROBLEM, BUT I DO KNOW THAT IT IS IMPORTANT TO TREAT MEDICINES CAREFULLY AND USE THEM PROPERLY.

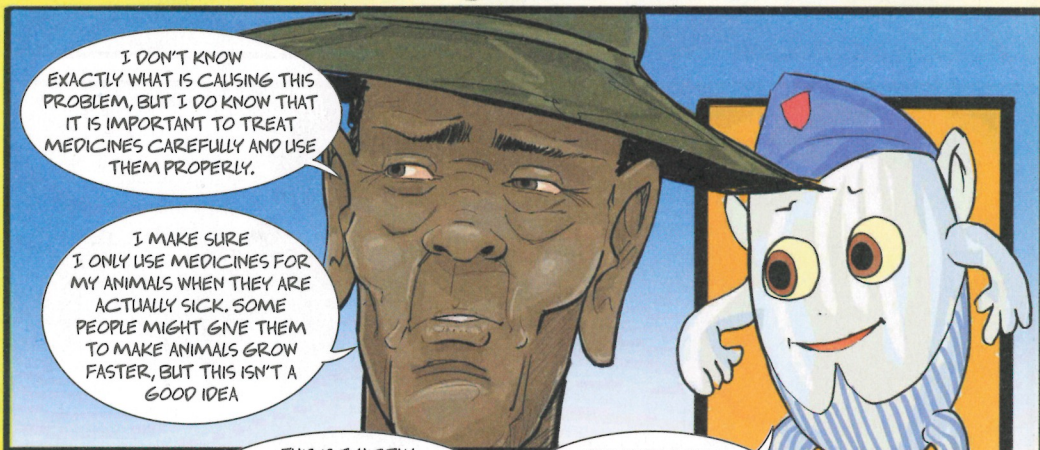
I MAKE SURE I ONLY USE MEDICINES FOR MY ANIMALS WHEN THEY ARE ACTUALLY SICK. SOME PEOPLE MIGHT GIVE THEM TO MAKE ANIMALS GROW FASTER, BUT THIS ISN'T A GOOD IDEA

THIS IS EXACTLY RIGHT! GIVING THOSE SPECIAL MEDICINES CALLED **ANTIBIOTICS** WHEN ANIMALS ARE NOT SICK CAN STOP THE MEDICINES WORKING PROPERLY.

THIS IS BECAUSE THE **BACTERIA** CAN GROW STRONGER EACH TIME THEY FIGHT THE MEDICINES INSIDE THE BODY!

IF THE **BACTERIA** GROW TOO STRONG, THEN WHEN THE ANIMALS ARE ACTUALLY SICK, THE **ANTIBIOTICS** CAN'T MAKE THEM BETTER! THERE IS A SPECIAL NAME FOR THIS. IT'S CALLED **ANTIBIOTIC RESISTANCE**

DO YOU THINK THIS MIGHT BE WHAT HAS HAPPENED TO THE MEDICINE MR WAFULA IS USING TO TRY TO HELP HIS COWS?



WHEN I DO NEED TO USE **ANTIBIOTICS** IN MY ANIMALS, I DON'T DRINK THE MILK FROM THOSE ANIMALS. ON THE BOTTLE OF MEDICINE IT EXPLAINS THAT YOU SHOULD WAIT FOR A CERTAIN TIME BEFORE DRINKING THIS MILK AGAIN. I THINK IT IS BEST TO DO THIS.

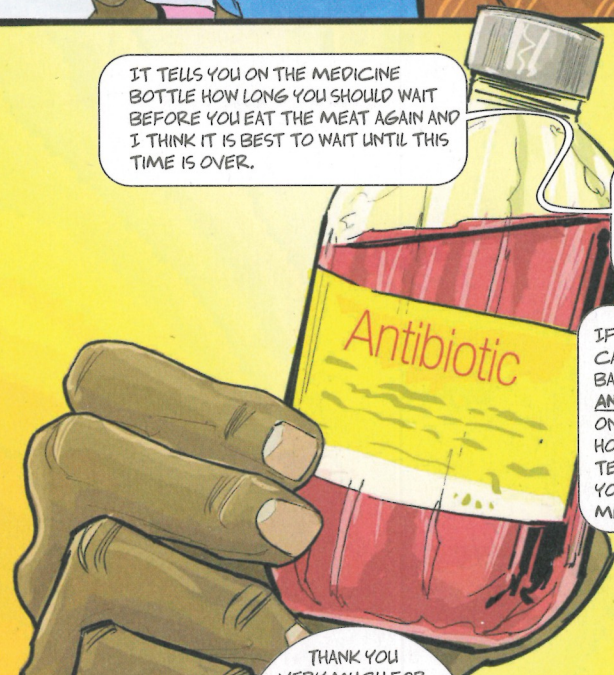
IT'S THE SAME WITH SELLING ANIMALS FOR MEAT. I DON'T SELL THE SICK ONES I HAVE BEEN TREATING WITH **ANTIBIOTICS**. I DON'T EAT THESE ANIMALS MYSELF OR GIVE THE MEAT TO MY FAMILY EITHER.

IT TELLS YOU ON THE MEDICINE BOTTLE HOW LONG YOU SHOULD WAIT BEFORE YOU EAT THE MEAT AGAIN AND I THINK IT IS BEST TO WAIT UNTIL THIS TIME IS OVER.

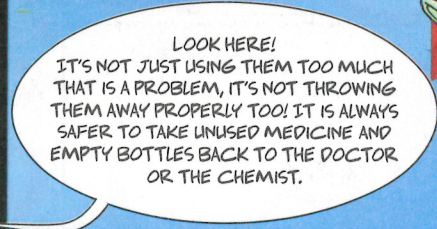
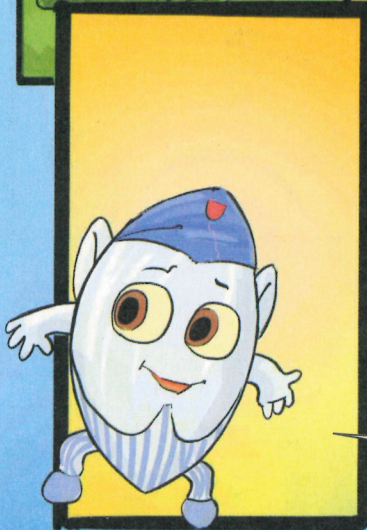
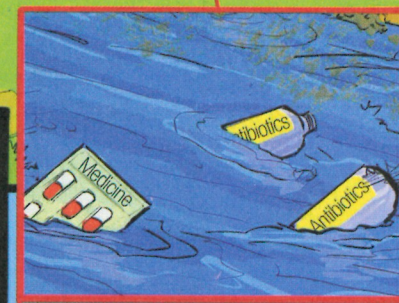
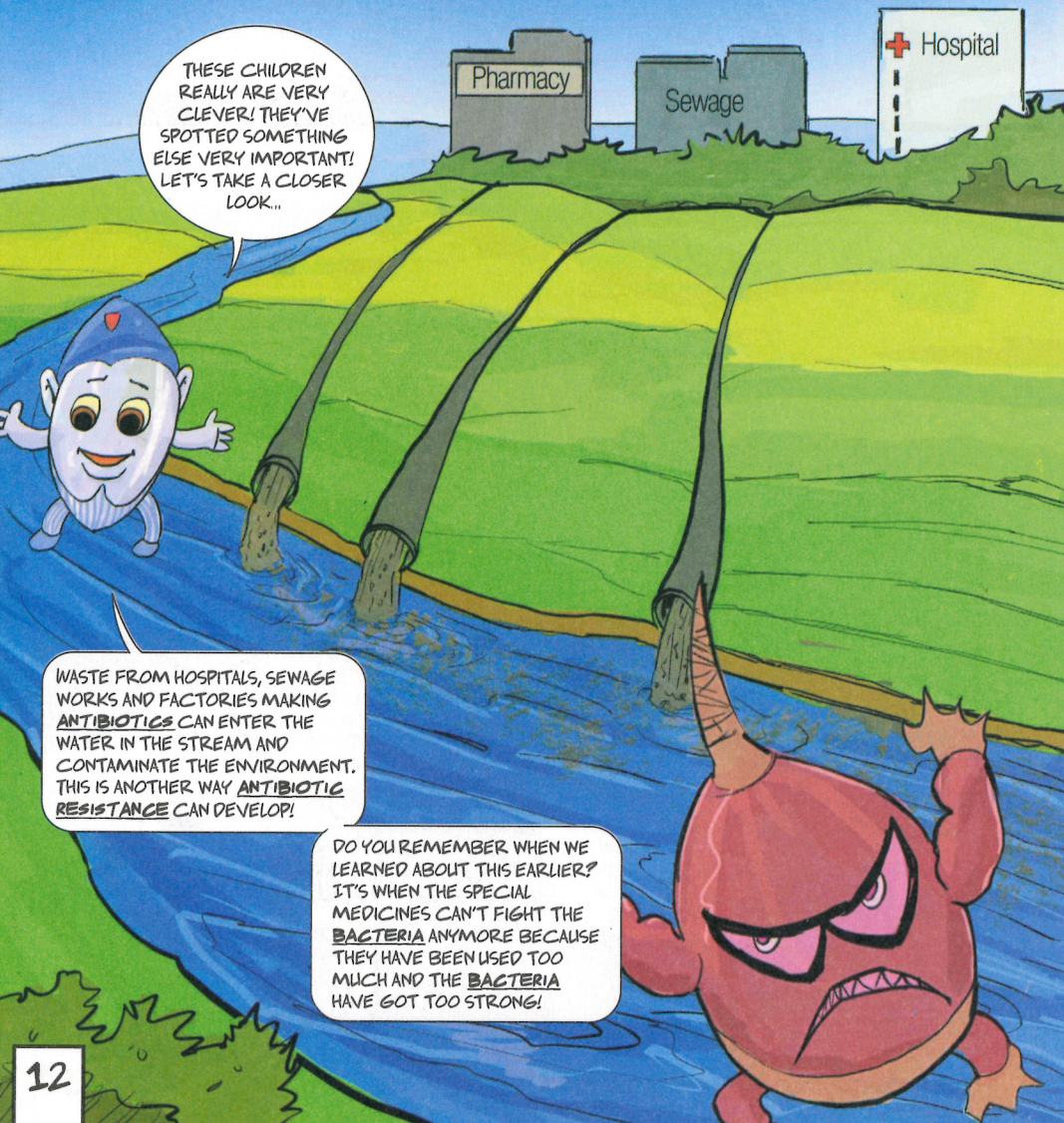
THIS IS ABSOLUTELY RIGHT! IT'S BETTER NOT TO DRINK MILK OR EAT MEAT FROM ANIMALS THAT ARE BEING TREATED WITH **ANTIBIOTICS** BECAUSE THE MEDICINE CAN ENTER THE MEAT AND MILK.

IF YOU EAT OR DRINK THIS, THE **ANTIBIOTICS** CAN GO INTO YOUR BODY AND LET THE **BACTERIA** GROW STRONGER, INCREASING **ANTIBIOTIC RESISTANCE** YOU CAN CHECK ON THE BOTTLE OF MEDICINE TO FIND OUT HOW TO USE IT PROPERLY AND SAFELY. IT WILL TELL YOU HOW MANY DAYS TO WAIT BEFORE YOU SHOULD DRINK THE MILK AND EAT THE MEAT AGAIN.

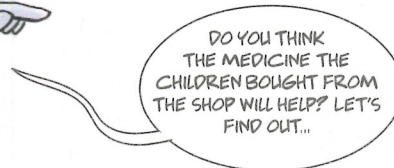
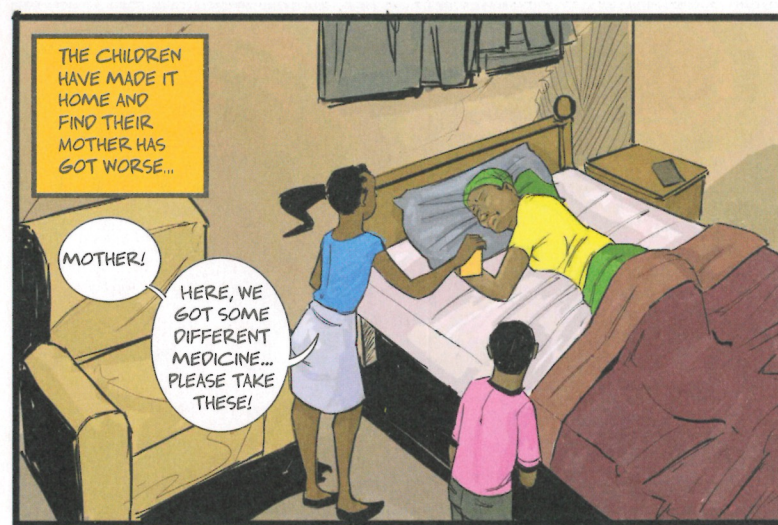
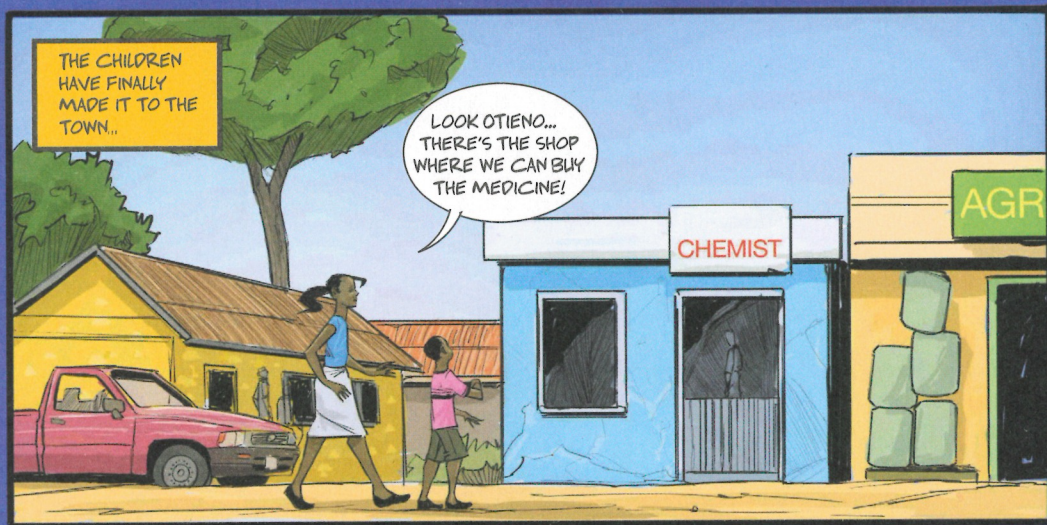
THANK YOU VERY MUCH FOR TELLING US ALL THIS IMPORTANT INFORMATION. FROM NOW ON WE WILL ALWAYS CHECK THE BOTTLE OF MEDICINE!













INSIDE MOTHER'S BODY, THE BATTLE IS GETTING MORE AND MORE SERIOUS...

THESE BACTERIA ARE SO STRONG! WE CAN'T STOP THEM!

HOW IS THIS HAPPENING? WE ARE DOING OUR BEST BUT THEY ARE BEATING US!

WE'RE WINNING! THERE'S NOTHING YOU CAN DO ABOUT IT!

OH NO!

IT LOOKS LIKE THESE NEW MEDICINES WON'T WORK AFTER ALL! IT'S BECAUSE THESE **BACTERIA ARE RESISTANT** TO THE **ANTIBIOTICS** THAT THE CHILDREN BOUGHT!

THE MAN SELLING THE MEDICINE IN THE SHOP DIDN'T KNOW WHICH **BACTERIA** WAS MAKING MOTHER ILL AND WHICH **ANTIBIOTICS** WERE THE RIGHT ONES TO KILL THEM! HE DIDN'T KNOW THAT THESE **BACTERIA ARE RESISTANT**!

CAN YOU REMEMBER SOME OF THE THINGS WE'VE FOUND WHICH CAUSE ANTIBIOTIC RESISTANCE?

TAKING MEDICINE WHICH IS OLD.

DRINKING MILK FROM ANIMALS TREATED WITH ANTIBIOTICS.

THROWING AWAY ANTIBIOTICS INTO THE ENVIRONMENT.

CONTAMINATED WASTE ENTERING WATERWAYS.

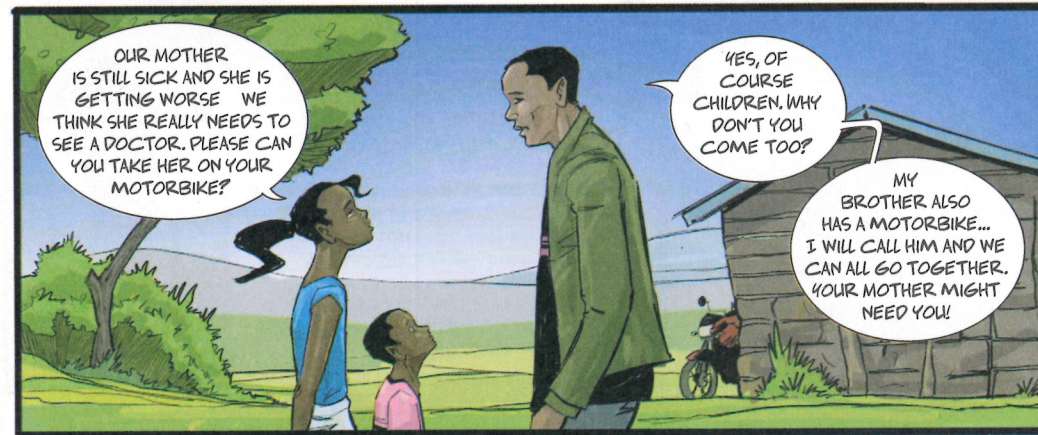


MEANWHILE, THE CHILDREN HAVE REALISED THAT THE MEDICINE ISN'T HELPING THEIR MOTHER...

THE TABLETS AREN'T HELPING SHE'S GETTING EVEN WORSE... WE'VE GOT TO DO SOMETHING!

I THINK SHE NEEDS TO SEE A DOCTOR. THE MAN IN THE SHOP COULDN'T HELP US BUT A DOCTOR WILL HAVE SPECIAL TRAINING TO KNOW WHAT IS WRONG!

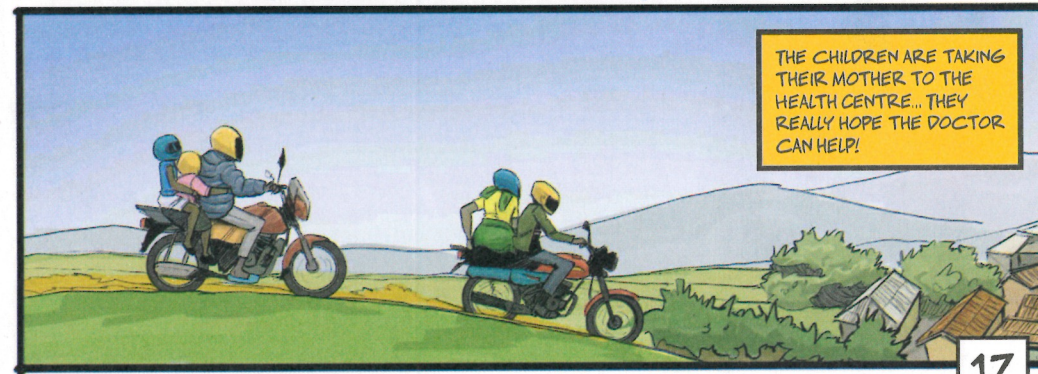
GOOD IDEA! MR WAFULA HAS A MOTORBIKE, MAYBE HE CAN TAKE HER?



OUR MOTHER IS STILL SICK AND SHE IS GETTING WORSE WE THINK SHE REALLY NEEDS TO SEE A DOCTOR. PLEASE CAN YOU TAKE HER ON YOUR MOTORBIKE?

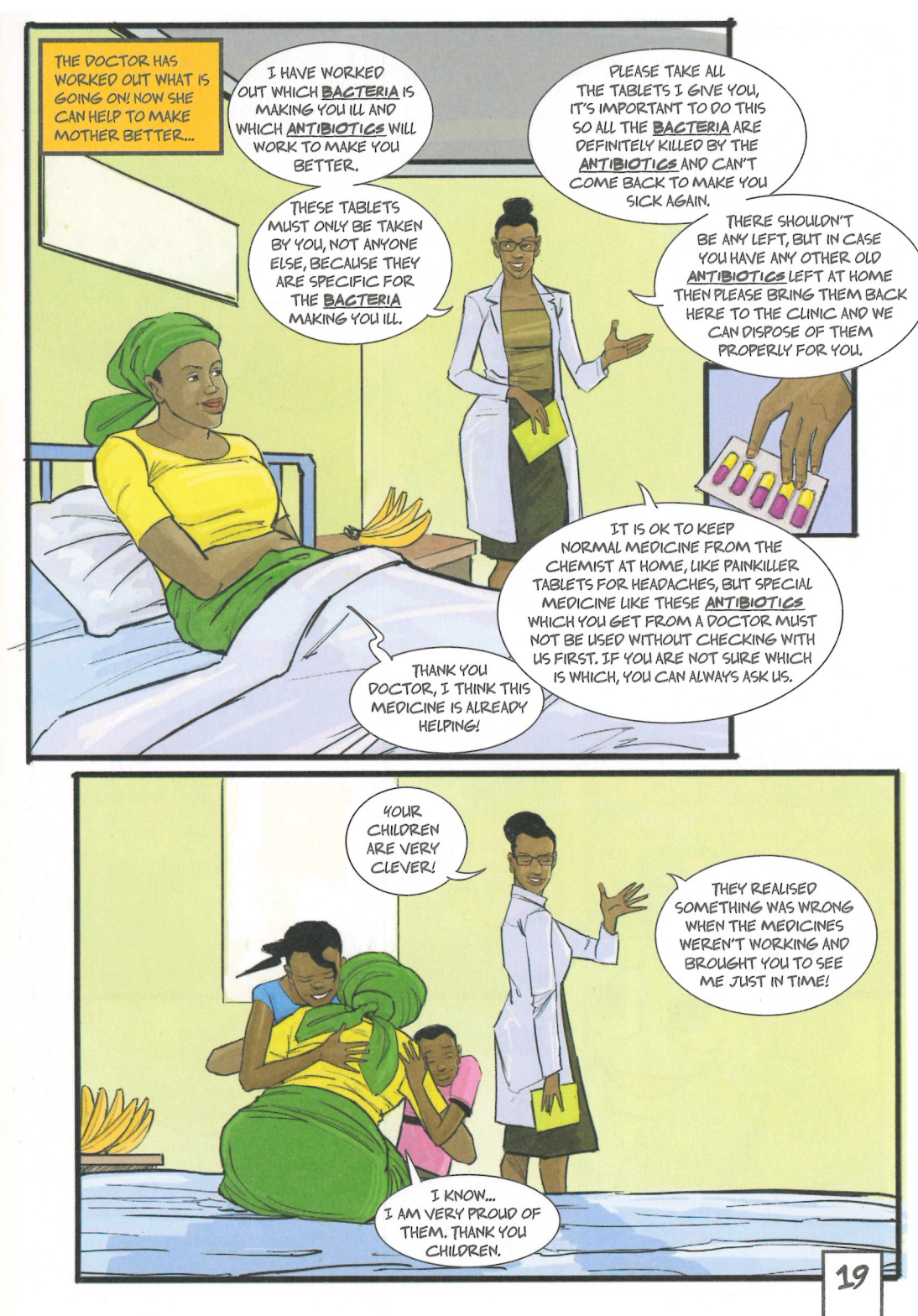
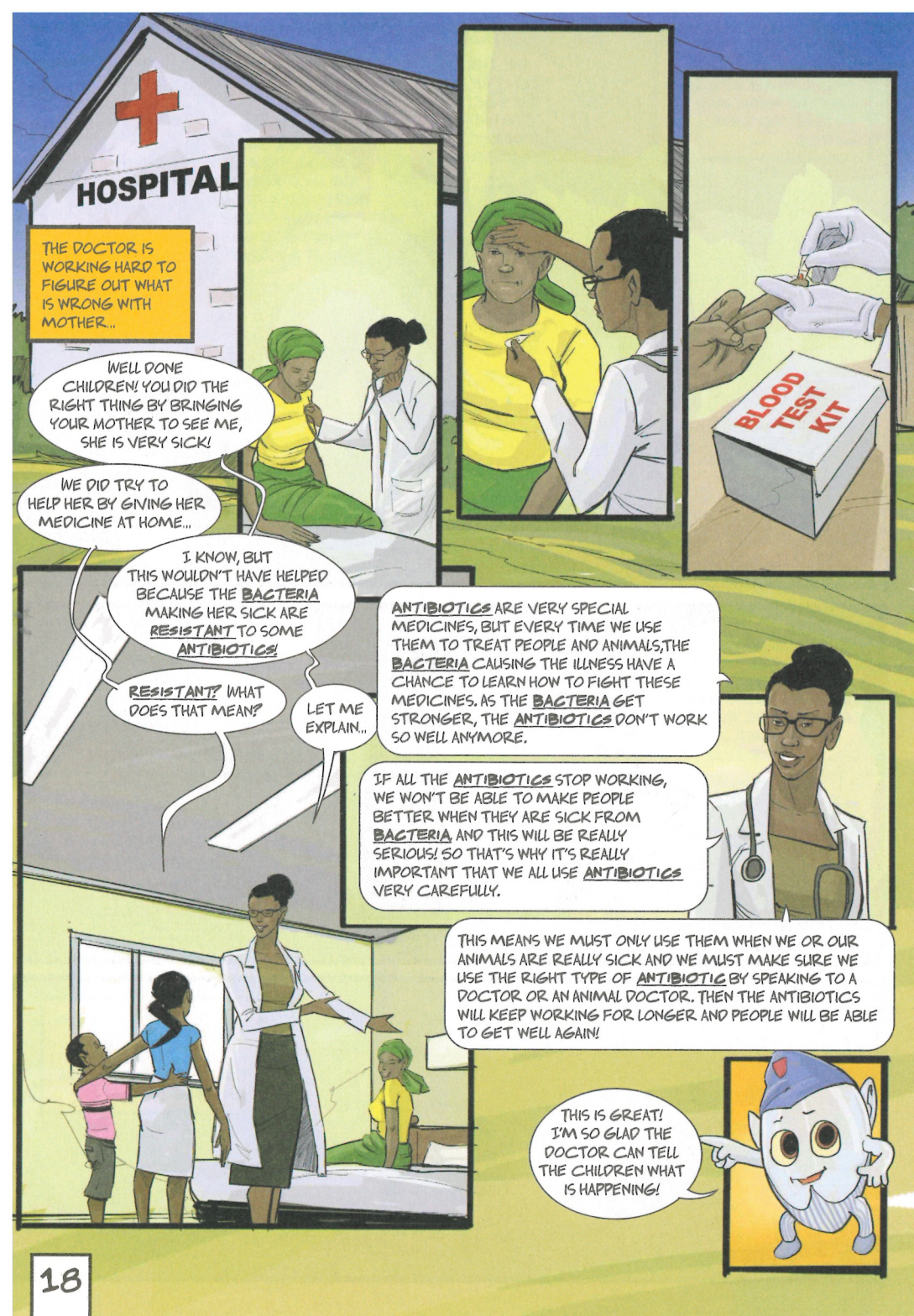
YES, OF COURSE CHILDREN. WHY DON'T YOU COME TOO?

MY BROTHER ALSO HAS A MOTORBIKE... I WILL CALL HIM AND WE CAN ALL GO TOGETHER. YOUR MOTHER MIGHT NEED YOU!



THE CHILDREN ARE TAKING THEIR MOTHER TO THE HEALTH CENTRE... THEY REALLY HOPE THE DOCTOR CAN HELP!







MEANWHILE, INSIDE HER BODY,  
THE ANTIBIOTICS THE  
DOCTOR HAS GIVEN MOTHER  
ARE WORKING HARD..

WE ARE  
WINNING!

OH NO..  
THEY ARE  
DEFEATING  
US!

WE WILL  
DEFINITELY BEAT  
THESE BAD  
BACTERIA!

THE CHILDREN  
DID THE RIGHT THING  
TAKING THEIR MOTHER TO  
THE DOCTOR. LOOK! THE  
ANTIBIOTICS SHE WAS GIVEN  
ARE ALREADY WORKING TO  
STOP THE BACTERIA!

TWO DAYS LATER..  
MOTHER IS FEELING  
MUCH BETTER!  
THERE'S A BIG  
SURPRISE FOR ALL  
OF THEM..

FATHER!!

HELLO  
CHILDREN! HAVE  
YOU BEEN  
GOOD?

WE HAD TO  
TAKE CARE OF  
MOTHER... SHE WASN'T  
WELL AND NEEDED TO BE  
TREATED BY THE  
DOCTOR!

THE CHILDREN  
HELPED ME TO GET  
BETTER, THEY WERE VERY  
BRAVE AND GOT HELP WHEN  
I NEEDED IT.

I WAS SICK  
BECAUSE OF  
RESISTANT  
BACTERIA!

LATER, AFTER THE  
CHILDREN HAVE TOLD THEIR  
FATHER EVERYTHING THEY  
HAVE LEARNED..

THANK YOU  
FOR TELLING ME ABOUT THIS.  
IT SOUNDS LIKE AN IMPORTANT ISSUE  
AND I THINK WE NEED TO SHARE THIS  
INFORMATION WITH EVERYONE.  
I WILL CALL A COMMUNITY  
MEETING.

WHAT IS  
THAT?

WE CAN  
TELL YOU ALL  
ABOUT IT!