



DISEASE HUNTERS

DOCUMENTARIES / FACTUAL

HUMAN/SOCIAL INTEREST

Disease Hunters

What may bring the next pandemic?

This 3-part series features "Disease Hunters" on the frontlines as they identify, study or kill infectious diseases, vectors and microbes. It stars leading scientists from Thailand, Singapore, Cambodia, Japan, Philippines, Iceland, India, UK and USA.

The series highlights international collaboration and data-sharing as scientists seek to keep pace with potential pathogens.

The series connects today's outbreaks with historical epidemics and explores factors that may accelerate future outbreaks like human-animal interactions, drug resistance, climate change, urbanisation and globalisation.

Through cinematic medical animations, it shows the unseen operations of viruses, bacteria and mosquito-borne diseases, vaccines, antibiotics, bacteriophages and monoclonal antibodies. Diseases discussed include COVID-19 coronavirus, influenza, H1N1 swine flu, polio, superbugs, tuberculosis, malaria and dengue.

什么会带来下一个疫情？

这个由三部分组成的系列节目以“疾病猎人”为主角，他们在前线识别、研究或杀死传染病、病媒和微生物。主演包括来自泰国，新加坡，柬埔寨，日本，菲律宾，冰岛，印度，英国和美国各个顶尖的科学家。

这一系列报道强调了科学家们寻求与潜在病原体保持同步的国际合作和数据共享。

该系列文章将今天的疫情与历史上的流行病联系起来，探讨可能加速未来疫情爆发的种种因素，如人与动物的互动，耐药性，气候变化，都市化和全球化。

通过电影医学动画，展现了病毒，细菌和蚊媒疾病，疫苗，抗生素，噬菌体和单克隆抗体的隐形操作。探讨的疾病包括2019冠状病毒，流感，H1N1猪流感，脊髓灰质炎，超级细菌，结核，疟疾和骨痛热症。

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EP1: The Viral Menace

COVID-19 has brought attention back to deadly viruses. Meet hard-working scientists in Singapore and elsewhere racing to identify emerging pathogens, battle existing viruses and co-operate to find urgently-needed treatments and vaccines.

We follow a Thai expert on an expedition to find out if bats in her country carry the same virus as bats in China, thought to be the origins of the new coronavirus. Meanwhile, a Singapore bat expert is exploring the mysteries of why bats can carry so many viruses without getting sick.

In Cambodia we see new research into the viruses carried by rodents, birds and pigs that have the potential to cause the next human pandemic.

In the Philippines we meet the frontline healthcare workers trying to eradicate an old scourge - polio. And in Iceland and Singapore, we see scientists studying and sharing the genomes of COVID-19 cases to help track the disease's spread and develop vaccines to save lives.

EP2: Battle Against Bacteria

Humanity has been battling bacteria for centuries. Today, Tuberculosis still kills 1.5 million people yearly. The discovery of antibiotics revolutionized healthcare and saved countless lives. But as antibiotic resistant "Superbugs" emerge, how do we stay one step ahead? We look at how bacteria, which are crucial to human survival, can wreak havoc in our bodies; and how scientists in Singapore used genome sequencing to discover a new strain of food-borne bacteria.

We see how antibiotics were discovered and how evolution and over-usage are leading to resistance. This resistance makes the fight against the on-going TB pandemic tougher. Singapore has kept TB under control for years but a multidrug resistant TB outbreak in 2012 served as a warning.

The race to discover new antibiotics is urgent. While some look into odd places like cockroaches, researchers in Singapore are exploring bacteriophage and polymers that kill bacteria differently from antibiotics. Knowledge keeps us one step ahead.

EP3: Mosquito Mayhem

Our war with mosquitoes is bloody. Mosquito-borne diseases kill over a million people each year, making mosquitoes the world's deadliest creatures.

Who can stop this menace? Meet disease hunters who combat mosquito-borne diseases like dengue and malaria. The programme highlights drug-resistant super malaria in Thailand, dengue outbreaks in Singapore caused by *Aedes aegypti* mosquitoes, and a chapter set in the US focuses on how climate change and globalisation accelerate the establishment of mosquito-borne diseases in new territories, where populations have low immunity and are at risk of severe outbreaks.

Through leading experts in Singapore, US and Thailand, the programme explores promising solutions to mosquito-borne diseases, such as monoclonal antibodies, genetically-engineered mosquitoes and Wolbachia bacteria. Finally, they weigh in on the merits of time-tested methods such as insecticides and public engagement.

第一集: The Viral Menace

2019冠状病毒使人们重新关注致命病毒。来认识在新加坡和其他地方辛勤工作的科学家们竞速识别新出现的病原体，与现有病毒作斗争还有合作寻找急需的治疗和疫苗。

我们跟随一位泰国专家进行了一次考察，来查明泰国内的蝙蝠是否与中国的蝙蝠携带相同的病毒，而中国的蝙蝠疑似新冠病毒的起源。与此同时，一位新加坡的蝙蝠专家也正在探索为什么蝙蝠能够携带这么多的病毒但自己却不会生病的奥秘。

在柬埔寨，我们看到了对啮齿动物、鸟类和猪携带的病毒的新研究，这些病毒有可能导致下一次人类大流行。

在菲律宾，我们遇到了一线医护人员，他们试图根除一种古老的祸害-脊髓灰质炎。

而在冰岛和新加坡，我们看到科学家研究并分享2019冠状病毒病例的基因组，以帮助追踪疾病的传播，并开发出拯救生命的疫苗。

第二集: Battle Against Bacteria

几个世纪以来，人类一直在与细菌作斗争。至今，每年仍有150万人死于肺结核。

抗生素的发现彻底改变了医疗保健并挽救了无数人的生命。但随着抗药性“超级细菌”的出现，我们又该如何保持领先的一步呢？

我们来看看对人类生存至关重要的细菌如何能对我们的身体造成严重的破坏，以及新加坡的科学家如何使用基因组测序来检测出一种新的食源性细菌。

我们探讨抗生素如何被发现和进化与过度使用如何导致耐药性的。

这种抵抗力使得对抗正在进行的结核病大流行的斗争更加艰难。新加坡多年来一直控制结核病，但2012年发生的耐药多药结核病是一个警告。

寻找新抗生素的竞赛迫在眉睫。当一些人研究蟑螂等奇怪的地方时，新加坡的研究人员正在探索噬菌体和聚合物，它们能杀死不同于抗生素的细菌。知识使我们领先一步。

第三集: Mosquito Mayhem

我们和蚊子的战争是血腥的。每年有100多万人死于蚊虫传播的疾病，使蚊子成为世界上最致命的生物。

谁能阻止这种威胁？来看看这些与骨痛热症和疟疾等蚊子传播疾病作斗争的疾病猎手。

这节目重点介绍了泰国的抗药性超级疟疾、埃及伊蚊在新加坡引发的登革热疫情，以及在美国设置的一章重点介绍气候变化和全球化如何加速在新界建立蚊虫传播的疾病，人群免疫力低下，有严重疫情爆发的危险。

该项目通过新加坡、美国 and 泰国各个顶尖专家，探讨了对蚊媒疾病有望的解决方案，例如单克隆抗体，基因工程蚊子和沃尔巴克氏菌。最后，他们权衡了杀虫剂和公众参与等久经考验的方法的优点。