

Chapter 1 : The Life and Death of Smallpox : Jenifer Glynn :

The Life and Death of Smallpox presents the entire engaging history of our struggle and ultimate victory over one of our oldest and worst enemies. The story of the campaign to track down and eradicate the virus, throughout the world--the difficulties, setbacks, and the challenges successfully met--is a highlight of a fascinating book, but we.

Ian Glynn, Jenifer Glynn Publisher: But these were arrivistes awaiting "civilized" societies before they struck and spread. Despite its alleged natural extinction, smallpox may forever loom as a terrible threat for generations to come. In this book, the authors eloquently describe and trace this hearty double stranded DNA virus, which evolved from a mammalian virus perhaps camelpox over eons; it has scarified people from pre-history through to recent times, and, as they point out, may conceivably do so again in the future. Ian Glynn, a neurophysiologist, has previously written a heady but readable book on the thinking process; Jenifer Glynn, an historian, has previously written a biography of a Victorian publisher and edited a series of turn-of-the-century letters. Her knowledge of and access to obscure historical works on epidemics and the numerous observations on smallpox, variolation and vaccinations are clearly evident. Why the authors chose this disease is not explained nor is how they may have divided their research agendas, but these questions are moot since the book is a seamless, exciting, refreshingly original work seeded with fascinating facts and lore about smallpox. It supersedes many older, fusty treatises and most other recent books that discuss either limited times and locales where smallpox struck or how it might be transmuted into a weapon. Over the last quarter of a century there has been a surge in popular historical accounts of major infectious diseases, particularly smallpox. A search at amazon. Not surprisingly, most of these were written over the last five to ten years. So, what makes this new book an original and worthy read? The life and death of smallpox is a kaleidoscopic page work that is pleasing, colourful, complex, and full of surprises. Unlike other books on smallpox or other diseases with ancient lineages , it is not unduly Eurocentric in its approach. While the narrative follows a time line, one reads about European epidemics alongside companion accounts about Africa, the Middle East, Asia, and the Americas. These accounts are accompanied by numerous references and footnotes. The authors rely on many letters and documents, sometimes choosing to editorialize on their content or question the wisdom of their writers. The very origin of anti-immunization efforts began with these anti-vaccinationists. The dispute surrounding vaccination continued in Europe, the Americas and elsewhere throughout the nineteenth and twentieth centuries, despite the shockingly large numbers of victims who died from smallpox. The authors document dozens of situations around the world where the absolute numbers of ill and dead are quite sobering. The final three chapters of the book address the campaign that was planned to lead to the demise of smallpox in East Africa and the Indian subcontinent. While the book might be considered a graphic obituary for a sociopath, the authors suggest that its title could easily be The life and death and possible resurrection of smallpox if the pathogen were to be used as a BT agent. It is also pointed out that the vaccinia virus offers many other exciting opportunities as a vehicle for delivering cancer treatment and developing other immunizing agents. The authors clearly enjoy their chosen topic, as well as Dr Jenner and his discovery.

Chapter 2 : Smallpox - Wikipedia

The Life and Death of Smallpox has 25 ratings and 4 reviews. Eleanor said: As someone who has always been fascinated by epidemics and vaccines this was a.

This is nowhere more true than in the case of smallpox, a virus once familiar to Pepys, Napoleon and the lowliest cowherd but now the exotic preserve of a handful of governments and - if the Pentagon is to be believed - international terrorists. Eliminated from Europe and North America by the early 20th century and eradicated worldwide by the WHO in , the variola virus or the "pox", as writers from Shakespeare to Thackeray have called it, induced one of the most unpleasant and disfiguring deaths known to man. Within weeks of contracting variola, a patient would break out in hard, raised spots that gradually softened and filled with pus. In two thirds of cases the "pustules" would flatten and scab off. By the late 18th century, smallpox was killing , Europeans a year, one in 10 of them children under five; however, those who survived enjoyed immunity against further infections with only permanent pitted scars - the pock marks - to show for their ordeal. That is no longer the case. As Ian and Jenifer Glynn point out in their timely study of the disease, when a traveller from Mexico re-introduced the virus to New York city in , such was the fear of a new epidemic that the authorities vaccinated six million people within a month. So that when, following September 11 , fears were raised that bio-savvy jihadists might be planning to release weaponised aerosols in crowded city centres, both the US and the UK began building up their smallpox vaccine stocks. Thankfully, the threatened attack never came and the Glynnns do not go looking for it. Apparently, the first person to witness this procedure, which entailed the insertion of infectious viral material from a smallpox victim under the skin of a non-immune patient, was Lady Mary Wortley Montagu, the eccentric wife of the British ambassador to Turkey. Likening it to the "engrafting" of a bud in horticulture the Glynnns point out that the literal meaning of inoculation is "in-eyeing" , Lady Mary had the procedure performed on her own son and in introduced it to England. But while inoculation, where successful, conferred lifelong immunity, in some cases inoculated patients would develop the full-blown disease and die, or else infect those near to them, increasing the risks for others. The result was that many educated parents, including Leopold Mozart, father of Wolfgang, actively resisted the new-fangled procedure. Explaining his decision not to inoculate his year-old prodigy when a smallpox epidemic seized Vienna, Leopold wrote: Edward Jenner, a lowly country doctor and expert on the nesting patterns of the cuckoo, in improved on inoculation by taking the related cowpox virus from a pustule on the arm of a milkmaid and injecting it into a healthy young boy. Jenner was able to show that vaccination by the cowpox, or vaccinia virus, induced protection against smallpox in a manner that was both safe for the patient and for those with whom he might come into contact. Some, like Dr William Rowley, a prominent physician who launched a hysterical campaign claiming that vaccination had produced an "ox-faced boy", were relatively easy to dismiss. Thankfully, today such voices are no longer in the ascendant but, as the recent public concern over the side-effects of the MMR vaccine demonstrate, such worries have not gone away, merely receded. Raised in a world made safe by Jenner, for many the risks of contracting smallpox or some other disease will always seem more remote than the more immediate risks associated with vaccination. Having said that, were the unthinkable to happen and were terrorists to succeed in releasing the variola virus in a major western city tomorrow, I know where I would stand. The Hunt for the Cure for Malaria Macmillan.

Full text Full text is available as a scanned copy of the original print version. Get a printable copy (PDF file) of the complete article (12M), or click on a page image below to browse page by page.

Species Variola virus Smallpox was caused by infection with variola virus, which belongs to the genus Orthopoxvirus, the family Poxviridae and subfamily Chordopoxvirinae. Evolution The date of the appearance of smallpox is not settled. It most likely evolved from a terrestrial African rodent virus between 68,000 and 16,000 years ago. One clade was the variola major strains the more clinically severe form of smallpox which spread from Asia between 1,000 and 1,000 years ago. A second clade included both variola minor a phenotypically mild smallpox described from the American continents and isolates from West Africa which diverged from an ancestral strain between 1,000 and 6,000 years before present. This clade further diverged into two subclades at least 1,000 years ago. If the mutation rate is assumed to be similar to that of the herpesviruses, the divergence date between variola from Taterapox has been estimated to be 50,000 years ago. Better estimates of mutation rates in these viruses are needed. Diversification of strains only occurred in the 18th and 19th centuries. Four orthopoxviruses cause infection in humans: Variola virus infects only humans in nature, although primates and other animals have been infected in a laboratory setting. Vaccinia, cowpox, and monkeypox viruses can infect both humans and other animals in nature. Poxviruses are unique among DNA viruses in that they replicate in the cytoplasm of the cell rather than in the nucleus. In order to replicate, poxviruses produce a variety of specialized proteins not produced by other DNA viruses, the most important of which is a viral-associated DNA-dependent RNA polymerase. Both enveloped and unenveloped virions are infectious. The viral envelope is made of modified Golgi membranes containing viral-specific polypeptides, including hemagglutinin. It was transmitted from one person to another primarily through prolonged face-to-face contact with an infected person, usually within a distance of 1 meter. Rarely, smallpox was spread by virus carried in the air in enclosed settings such as buildings, buses, and trains. The virus can be transmitted throughout the course of the illness, but this happened most frequently during the first week of the rash, when most of the skin lesions were intact. The overall rate of infection was also affected by the short duration of the infectious stage. In temperate areas, the number of smallpox infections was highest during the winter and spring. In tropical areas, seasonal variation was less evident and the disease was present throughout the year. Vaccination immunity declined over time and was probably lost within thirty years. Microscopically, poxviruses produce characteristic cytoplasmic inclusions, the most important of which are known as Guarnieri bodies, and are the sites of viral replication. Guarnieri bodies are readily identified in skin biopsies stained with hematoxylin and eosin, and appear as pink blobs. They are found in virtually all poxvirus infections but the absence of Guarnieri bodies could not be used to rule out smallpox. All orthopoxviruses exhibit identical brick-shaped virions by electron microscopy. Definitive laboratory identification of variola virus involved growing the virus on chorioallantoic membrane part of a chicken embryo and examining the resulting pock lesions under defined temperature conditions. Serologic tests and enzyme linked immunosorbent assays ELISA, which measured variola virus-specific immunoglobulin and antigen were also developed to assist in the diagnosis of infection. Chickenpox and smallpox could be distinguished by several methods. Unlike smallpox, chickenpox does not usually affect the palms and soles. Additionally, chickenpox pustules are of varying size due to variations in the timing of pustule eruption: A variety of laboratory methods were available for detecting chickenpox in evaluation of suspected smallpox cases. In contrast to the rash in smallpox, the rash in chickenpox occurred mostly on the torso, spreading less to the limbs. An Italian female smallpox patient whose skin displayed the characteristics of late-stage confluent maculopapular scarring, Smallpox vaccine Components of a modern smallpox vaccination kit including the diluent, a vial of Dryvax vaccinia vaccine, and a bifurcated needle. The earliest procedure used to prevent smallpox was inoculation known as variolation after the introduction of smallpox vaccine to avoid possible confusion, which likely occurred in India, Africa, and China well before the practice arrived in Europe. Because the person was infected with variola virus, a severe infection could result, and the person could transmit smallpox to others. Variolation had a 0. In 1716, Edward Jenner, a doctor in

Berkeley, Gloucestershire, rural England, discovered that immunity to smallpox could be produced by inoculating a person with material from a cowpox lesion. Cowpox is a poxvirus in the same family as variola. Jenner called the material used for inoculation vaccine, from the root word vacca, which is Latin for cow. The procedure was much safer than variolation, and did not involve a risk of smallpox transmission. Vaccination to prevent smallpox was soon practiced all over the world. During the 19th century, the cowpox virus used for smallpox vaccination was replaced by vaccinia virus. Vaccinia is in the same family as cowpox and variola, but is genetically distinct from both. The origin of vaccinia virus and how it came to be in the vaccine are not known. Voltaire does not speculate on where the Circassians derived their technique from, though he reports that the Chinese have practiced it "these hundred years". The current formulation of smallpox vaccine is a live virus preparation of infectious vaccinia virus. The vaccine is given using a bifurcated two-pronged needle that is dipped into the vaccine solution. The needle is used to prick the skin usually the upper arm a number of times in a few seconds. If successful, a red and itchy bump develops at the vaccine site in three or four days. In the first week, the bump becomes a large blister called a "Jennerian vesicle" which fills with pus, and begins to drain. During the second week, the blister begins to dry up and a scab forms. The scab falls off in the third week, leaving a small scar. Neutralizing antibodies are detectable 10 days after first-time vaccination, and seven days after revaccination. Historically, the vaccine has been effective in preventing smallpox infection in 95 percent of those vaccinated. If a person is vaccinated again later, immunity lasts even longer. Studies of smallpox cases in Europe in the 1700s and 1800s demonstrated that the fatality rate among persons vaccinated less than 10 years before exposure was 1. By contrast, 52 percent of unvaccinated persons died. There are side effects and risks associated with the smallpox vaccine. In the past, about 1 out of 1,000 people vaccinated for the first time experienced serious, but non-life-threatening, reactions, including toxic or allergic reaction at the site of the vaccination erythema multiforme, spread of the vaccinia virus to other parts of the body, and to other individuals. Potentially life-threatening reactions occurred in 14 to 20 people out of every 1 million people vaccinated for the first time. Based on past experience, it is estimated that 1 or 2 people in 1 million die. By 1970, routine vaccination had ceased in all countries. Vaccination four to seven days after exposure can offer some protection from disease or may modify the severity of disease. Flat and hemorrhagic types of smallpox are treated with the same therapies used to treat shock, such as fluid resuscitation. People with semi-confluent and confluent types of smallpox may have therapeutic issues similar to patients with extensive skin burns. The drug must be administered intravenously, and may cause serious kidney toxicity. It was approved for use in the United States by the U. S. FDA on August 31, 1978. It contains live vaccinia virus, cloned from the same strain used in an earlier vaccine, Dryvax. While the Dryvax virus was cultured in the skin of calves and freeze-dried, ACAMs virus is cultured in kidney epithelial cells Vero cells from an African green monkey. Efficacy and adverse reaction incidence are similar to Dryvax. The overall fatality rate for children younger than 1 year of age is 40%–50 percent. Hemorrhagic and flat types have the highest fatality rates. The fatality rate for flat-type is 90 percent or greater and nearly 100 percent is observed in cases of hemorrhagic smallpox. The case-fatality rate for variola minor is 1 percent or less. The cause of death from smallpox is not clear, but the infection is now known to involve multiple organs. Circulating immune complexes, overwhelming viremia, or an uncontrolled immune response may be contributing factors. Cause of death in hemorrhagic cases involved heart failure, sometimes accompanied by pulmonary edema. In late hemorrhagic cases, high and sustained viremia, severe platelet loss and poor immune response were often cited as causes of death. Respiratory complications tend to develop on about the eighth day of the illness and can be either viral or bacterial in origin. Secondary bacterial infection of the skin is a relatively uncommon complication of smallpox. When this occurs, the fever usually remains elevated. Pustules can form on the eyelid, conjunctiva, and cornea, leading to complications such as conjunctivitis, keratitis, corneal ulcer, iritis, iridocyclitis, and optic atrophy. Blindness results in approximately 35 percent to 40 percent of eyes affected with keratitis and corneal ulcer. Hemorrhagic smallpox can cause subconjunctival and retinal hemorrhages. In 2 to 5 percent of young children with smallpox, virions reach the joints and bone, causing osteomyelitis variolosa. Lesions are symmetrical, most common in the elbows, tibia, and fibula, and characteristically cause separation of an epiphysis and marked periosteal reactions. Swollen joints limit movement, and arthritis may lead to limb

deformities, ankylosis , malformed bones, flail joints, and stubby fingers. Smallpox was probably introduced into China during the 1st century AD from the southwest, and in the 6th century was carried from China to Japan. In India, the Hindu goddess of smallpox, Sitala Mata , was worshiped in temples throughout the country. Smallpox is not clearly described in either the Old or New Testaments of the Bible or in the literature of the Greeks or Romans. By the 16th century smallpox had become well established across most of Europe. The settled existence of smallpox in Europe was of particular historical importance, since successive waves of exploration and colonization by Europeans tended to spread the disease to other parts of the world. By the 16th century it had become an important cause of morbidity and mortality throughout much of the world. There are no credible descriptions of smallpox-like disease in the Americas before the westward exploration by Europeans in the 15th century AD. Smallpox devastated the native Amerindian population and was an important factor in the conquest of the Aztecs and the Incas by the Spaniards.

Chapter 4 : Saãde Pãblica - The life and death of smallpox The life and death of smallpox

This Journal. Back; Online First; Current Issue; All Issues; About the journal; Journals. Back; The Lancet; The Lancet Child & Adolescent Health; The Lancet Diabetes & Endocrinology.

In lieu of an abstract, here is a brief excerpt of the content: *The Life and Death of Smallpox*. Cambridge University Press, Smallpox is a disease whose time has come and gone and then come back yet again. From the official declaration of eradication in to the mids, study of and reflection on the disease was largely limited to medical historians and a few virologists. With increasing concern about potential bioterrorist agents, smallpox included, and the recurrent rumors and anecdotes of potential unaccounted-for caches of the lethal virus, the press and the public, public health researchers and government officials, intelligence agencies and pharmaceutical manufacturers have all developed a renewed interest in this pathogen. *The Life and Death of Smallpox* provides a relatively pithy primer on the biology and history of both the disease and the vaccine. It is clearly written and contains considerable information. The general reader looking for an overview might turn here and gain some insights. However, the authors seem to have relied on a small number of oft-referenced sources; they only superficially address some key policy issues and recent events; and they offer no new insights about them. For consideration of more recent smallpox vaccination policy, see the report of an Institute of Medicine committee, *The Smallpox Vaccination Program*. The chapters are organized chronologically, and within each era they address events and individuals in many parts of [End Page] the world. Civil War within two pages in chapter The resulting narrative is filled with information, and because there is no easy way to present such multinational, multimillennial material, the reader may occasionally feel a bit jet-lagged. One attribute of this book is its more extensive coverage of smallpox and vaccination in England. There are many interesting anecdotes and factsâ€”from references to smallpox in the works of great British novelists, to learning that Josiah Wedgwood of pottery fame was the grandfather of Charles Darwin. But some interesting and relevant historical elements are not included. George Washington is mentioned as having "an acute awareness of the danger of inoculated smallpox" p. Chapters on the recent history of the eradication effort and on the issues of smallpox and bioterrorism suffer from a reliance on limited sources the IOM report is not referenced and a lack of critical analysis. Many individuals who played critical roles in smallpox eradication have been ignored or undervalued. In the late s and early s David Sencer, the director of the then Communicable Disease Center, made key decisions in resource allocation and prioritization that provided crucial support to the global effort. The role of the U. Agency for International Development is not discussed. The authors do not mention that the WHO during the smallpox eradication campaign used as a justification for the program their belief that this agent was very unlikely to be used for bioterrorism. In addition, the story of eradication could be considerably enhanced by including more of the perspectives of the local participants in programs for which most of the histories have been provided by a few international participants. Such a book has yet to be written. The discussion of recent smallpox-vaccination policy decisions also suffers from little political context. The IOM committee report questioned the scientific credibility of the promulgated policy. The role of the USSR in advocating early for the eradication of smallpox and then later stockpiling the virus for weapons use is You are not currently authenticated. View freely available titles:

Chapter 5 : Project MUSE - The Life and Death of Smallpox (review)

The Life and Death of Smallpox by Ian and Jenifer Glynn pp, Profile, £ One of the paradoxes of the World Health Organisation's campaign against infectious diseases is that the greater.

After several years as a police photographer she joined the University of Birmingham Medical School , where she was employed as a medical photographer in the Anatomy Department. Parker often worked in a darkroom above a laboratory where research on smallpox viruses was being conducted. The building, which comprised Wards 31 and 32, has since been demolished. On 11 August , Parker who had been vaccinated against smallpox in [4] [15] , but not since [4] fell ill; she had a headache and pains in her muscles. She developed spots that were thought to be a benign rash, [10] or chickenpox. Her parents were later also transferred to Catherine-de-Barnes. Samples of the fluid were also collected by a Biomedical Scientist for examination at the Regional Virus Laboratory, which was in East Birmingham Hospital. It has since been demolished. It shows Wards 31 ground level and 32 upper level. She was in a transparent body bag packed with wood shavings and sawdust. There was also some kind of liquid and I remember that I was frightened that the bag would split open. The body was covered in sores and scars - it was quite horrific. I was on my own and I needed help to lift the body People from the hospital were very wary of helping me When the day of the funeral arrived, the cars were given an escort by unmarked police vehicles just in case there was an accident The body had to be cremated because there was a chance the virus could have thrived in the ground if Mrs Parker had been buried. All other funerals were cancelled that day and the Robin Hood Crematorium was thoroughly cleaned afterwards. The outbreak resulted in people being immediately quarantined, several of them at Catherine-de-Barnes Hospital, including the ambulance driver who transported Mrs Parker. The other close contacts, which included two biomedical scientists from the Regional Virus Laboratory, were released from quarantine in Catherine-de-Barnes on 10 October He had a milder form of the disease, which was not diagnosed for eight weeks. His suicide note read "I am sorry to have misplaced the trust which so many of my friends and colleagues have placed in me and my work. This was partly because of safety concerns; the WHO wanted as few laboratories as possible handling the virus. The position of two safety cabinets is shown at the top with extraction ducts to the windows black arrows. The circles represent centrifuges and the squares various incubators and refrigerators. The laboratory was about 9. Shooter , [4] and comprising Dr Christopher Booth , Prof. Sir David Evans , J. It noted that Bedson had failed to inform the authorities of changes in his research that could have affected safety. Several of the staff at the laboratory had received no special training. Inspectors from the WHO had told Bedson that the physical facilities at the laboratory did not meet WHO standards, but had nonetheless only recommended a few changes in laboratory procedure. Bedson misled the WHO about the volume of work handled by the laboratory, telling them that it had progressively declined since , when in fact it had risen substantially as Bedson tried to finish his work before the laboratory closed. It found that there was "no doubt" that Parker had been infected at her workplace, [21] and identified three possible ways in which this could have occurred: On 25 July, Parker had spent much more time there than usual ordering photographic materials because the financial year was about to end.

Chapter 6 : The life and death of smallpox | Search Results | IUCAT Kokomo

From ancient Egypt, India and China, smallpox spread around the world. It defeated armies, relieved sieges, killed emperors, played havoc with dynasties, helped to establish Buddhism in Japan, and at about the time of Muhammad's birth it stopped Christian Abyssinians from capturing a still pagan Mecca.

Chapter 7 : The Life and Death of Smallpox by Jenifer Glynn and Ian Glynn (, Hardcover) | eBay

By smallpox had become the first-ever disease to be eradicated. Yet, today, its possible use in biological warfare presents a major threat. This is an accessible account of the history, and possible future, of a terrifying disease.

Chapter 8 : The life and death of smallpox | Awards & Grants

The Life and Death of Smallpox provides a relatively pithy primer on the biology and history of both the disease and the vaccine. It is clearly written and contains considerable information. It is clearly written and contains considerable information.

Chapter 9 : The Life and Death of Smallpox by Ian Glynn

The Life and Death of Smallpox 4 ill, felt a little better. Over the next two weeks the fever returned, and the rash went through a characteristic series of changes.