

Abstract:

The discovery of penicillin by Alexander Fleming in 1928 revolutionized the way infections were treated. In the context of World War II, the government of the United States politicized the production and use of penicillin as yet another weapon to win the war. It was carefully rationed on the home front, while being used with reckless abandon in the treatment battle wounds and venereal diseases on the battlefield. Penicillin was described as a miracle drug that would be able to cure everyone, when in reality it was only being used to benefit the military and the American war effort, at the expense of civilian lives.

An American-Made Miracle: The Politicization of Penicillin During World War II

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The discovery of penicillin by Alexander Fleming in 1928, and its purification by Howard Florey in 1940, revolutionized the way medicine treated infections.¹ They presented the medical world with a weapon that was startlingly effective to even the most deadly infections that threatened people's lives.² Penicillin seemed to be a solution to solve all of 20th century medicine's problems, with none of the side effects of the sulphonamides (sulpha drugs).³ While the advent of penicillin can be seen as a miracle for public health, with the ability to save countless human lives, the government of the United States viewed it differently during World War II. The military and government politicized penicillin during the war, as it was seen as a powerful tool in fighting the war both physically and ideologically. The politics of penicillin made the drug into a war hero and a weapon of war; it was useful in the production of propagandistic narratives to garner support of the war effort, in addition to its powerful antimicrobial effects that kept American troops in peak fighting shape. The politics of the war effort used penicillin to benefit the military at the expense of civilian lives on the home front. During World War II, penicillin was used in the United States as a military tool rather than a healthcare drug, as the narrative surrounding the drug was used to reinforce the idea that it was a miracle cure for everyone, while only the soldiers and the military leaders truly received its benefits.

The public image of penicillin was managed carefully to align with the views of the government, and was it used as a propaganda tool. Narratives about penicillin overwhelmingly focused on the positives and were used as evidence of American exceptionalism. Stories were used to construct the idea that penicillin was an American miracle drug that would be capable of

¹ Milton Wainwright, *Miracle Cure: The Story of Penicillin and the Golden Age of Antibiotics* (Oxford: Basil Blackwell, 1990), 14.

² Wainwright, *Miracle Cure*, 14.

³ Wainwright, *Miracle Cure*, 13.

saving American lives, despite the fact that the British discovered it. In the media, Alexander Fleming was described as having “stumbled” upon penicillin while he “pottered” about in his lab, which brings to mind an old, out of touch British intellectual that tinkered with microbes as a hobby.⁴ This minimizes Fleming’s work and skill in microbiology. The colonies of the mould may have landed on the petri dish by chance, but it still took a high level of microbiological knowledge to recognize what was happening on the plate. The descriptions of the drug minimized this fact, and while they mention that Fleming discovered the compound, they emphasize that American innovators brought it into production.⁵ On many levels this is true, as chemical and drug companies like Pfizer and Merck did have a significant impact on the scale-up needed to produce penicillin at marketable levels.⁶ However, the story that was told by the press was that the old-fashioned stodgy British, with out-dated ideas and equipment, were not capable of taking Fleming’s discovery and making something meaningful from it.⁷ They argued that it took American ingenuity, and capitalist injections of money, to make penicillin the wonder drug that saved lives.⁸ This reinforces the rhetoric that was often seen when Americans discuss their independence from the British Empire—they broke away from old, backward, imperialist ways in favour of a younger, freer system.

While penicillin did revolutionize medicine, especially in war medicine and the treatment of battle wounds, it was used by the U.S. government as yet another tool in winning the ideological war through propaganda. The language used by both doctors and journalists when describing penicillin indicated how impressive its effects were. Reports by the American

⁴ Anthony Mymark, “Penicillin—Medicine’s Newest Miracle,” *Liberty*, July 1943, 36.

⁵ Robert Bud, *Penicillin: Triumph and Tragedy* (Oxford: Oxford University Press, 2007), 67.

⁶ Chester S. Keefer *et al.*, “Penicillin in the Treatment of Infections,” *The Journal of the American Medical Association* 122, no. 18 (1943): 1217.

⁷ Bud, *Penicillin*, 68.

⁸ Bud, *Penicillin*, 68.

Medical Association at the time used words like “extraordinary,” a term that is rarely used in the terse, concise prose of a medical bulletin.⁹ The excitement that can be seen in these medical documents pales in comparison to the reports in the media about the “magic drug.”¹⁰ Magazine and newspaper articles described the new drug as nothing short of a miracle, and saw it as a faultless tool that could cure all ailments. In these articles, penicillin was not just described as an inanimate, passive object, but was personified as an active agent on the battlefield saving lives. One particular article in *Liberty*, “Penicillin—Nature’s Newest Miracle,” demonstrates the personification and military imagery that was used to describe penicillin. The fungus was described as having the ability to “teach” Fleming its ways in defending itself from its enemies, which it achieved by producing a “moat of liquid poison,” that contained the penicillin.¹¹ The relatively inert colonies of mould were seen as possessing knowledge of military fortifications, and capable of passing this knowledge onto humans. The hyperbolic personification of penicillin was taken even further in descriptions of the cases that it was able to cure. Numerous examples of the drug saving the lives of hopeless cases described how penicillin brought them back from the brink of death within mere hours, gave back the use of necrotizing limbs, and even granted a man with blindness the ability to see.¹² The language used to describe penicillin’s effects echoes biblical tales, and gives the drug almost Christ-like abilities to save the lives of Americans.

In many ways, the use of biblical language to describe penicillin’s life-saving effects was not hyperbolic. Penicillin easily outstripped the effects of the sulpha drugs, and quickly became

⁹ Keefer *et al.*, “Penicillin in the Treatment of Infections,” 1221.

¹⁰ Gilbert Shama, “The Role of the Media in Influencing Public Attitudes to Penicillin During World War II,” *Dynamis* 35, no. 1 (2015): 141.

¹¹ Mymark, “Newest Miracle,” 37.

¹² Mymark, “Newest Miracle,” 37-38.

seen as a “magic bullet” in treating even the most serious infections.¹³ In a statement by the Committee on Chemotherapeutic and Other Agents, in the National Research Council, physicians described penicillin’s effects on a number of infectious agents that were relevant to military medicine. The committee was particularly interested in penicillin’s use in *Staphylococcus aureus* infections, as “staph infections” were very common in war and surgical wounds due to the conditions on the battlefield.¹⁴ The committee studied information from a number of case studies and found that 60% of cases with *S. aureus* bacteremia (bacteria found in the bloodstream) either made a full recovery or demonstrated a “striking improvement.”¹⁵ Even more miraculous was the finding that 100% of the cases of superficial *Staphylococcal* infections were treated successfully.¹⁶ Penicillin was also found to have a profound effect on *Streptococcal* and *Pneumococcal* infections, both of which were generally resistant to sulpha drugs; the treatment of pneumonia was particularly impressive to the committee, as pneumonia was especially deadly within the military.¹⁷ One of the most exciting outcomes of this investigation for the committee was the “extraordinarily good” treatment of gonorrhoea; it successfully treated 97% of the cases, and patients were free from symptoms and bacteria in 9-48 hours.¹⁸ The treatments of sexually transmitted infections like gonorrhoea were of particular relevance to the military, as the sexually permissive nature of war culture resulted in many soldiers becoming incapacitated by such infections.

At the same time that the miraculous effects of penicillin were emphasized, its negative effects were minimized. Penicillin did have a remarkable effect on infections, and in general was

¹³ Wainwright, *Miracle Cure*, 8.

¹⁴ Keefer *et al.*, “Penicillin in the Treatment of Infections,” 1217.

¹⁵ Keefer *et al.*, “Penicillin in the Treatment of Infections,” 1219.

¹⁶ Keefer *et al.*, “Penicillin in the Treatment of Infections,” 1220.

¹⁷ Keefer *et al.*, “Penicillin in the Treatment of Infections,” 1221.

¹⁸ Keefer *et al.*, “Penicillin in the Treatment of Infections,” 1222.

less toxic than the earlier sulpha drugs.¹⁹ However, there still were risks of adverse effects occurring after treatment of penicillin. Both the government agencies and the media uniformly downplayed these reactions. The media reports on the effects of penicillin described the drug as a treatment that would benefit everyone, and that there were virtually no side effects—which was not true.²⁰ Reportedly, about 10% of people treated with penicillin would experience an adverse reaction, which could range from fever and chills, to urticaria (rashes) and thrombophlebitis (blood clots), or death.²¹ ²² One soldier described that having penicillin injected into his veins felt like they had injected him with “boiling water,” which shows the potential severity of the reactions.²³ In practice, penicillin was not the painless cure-all that it was thought to be.

The presence of side effects in an antibiotic is not surprising, but what is most interesting is the difference in the treatment of the side effects of penicillin and sulpha drugs. Instances of side effects or allergies to penicillin were downplayed as negligible in reports, and they were often blamed on impurities. Prior to the development of synthetic penicillin, there was a significant amount of impurities in the penicillin that was injected into the veins of patients; this would have caused some of the reactions, but not all of them.²⁴ However, the presence of impurities was used to explain all reactions to the drug, and as a result the penicillin was seen as blameless—its adverse effects were due to contamination and not the activity of the drug itself.²⁵ The sulpha drugs were not viewed in the same manner, as the drugs themselves were labelled as

¹⁹ David P. Adams, “The Penicillin Mystique and the Popular Press (1935-1950),” *Pharmacy in History* 26, no. 3 (1984): 135.

²⁰ Adams, “Penicillin Mystique,” 136.

²¹ Adams, “Penicillin Mystique,” 138.

²² Keefer *et al.*, “Penicillin in the Treatment of Infections,” 1224.

²³ Bud, *Penicillin*, 62.

²⁴ Keefer *et al.*, “Penicillin in the Treatment of Infections,” 1224.

²⁴ Bud, *Penicillin*, 62.

²⁵ Adams, “Penicillin Mystique,” 136.

dangerous and even fatal. An example of this can be seen in an instance in the late 1930s, where a number of deaths occurred after the use of sulpha drugs, which prompted an investigation. It was found that the solvent used to dissolve the drug, diethylene glycol, was the source of toxicity.²⁶ While penicillin was able to dodge issues about adulterations in its formula, sulpha drugs were essentially blackballed as dangerous, even after the solvent was changed.

Additionally, there was a significant amount of press surrounding those who were “sensitive” or allergic to sulpha drugs, highlighting the dangers of anaphylaxis or death if they were given the drug.²⁷ In contrast, there was no mention of serious allergies to penicillin in the press, and it was portrayed as the ideal drug that cured without causing harm. This was not true, as penicillin allergies are a common, even in the present day. The first public reports of a death occurring due to a penicillin allergy was published in the *Coronet* in 1948, years after the end of the war.²⁸ This demonstrates the level of control that the government had over information given to the public about penicillin, as they were able to manipulate the narrative to elevate its God-like status, while effectively suppressing any evidence to the contrary.

The narrative that penicillin was an American-made miracle was created as propaganda to promote national pride and support for the war. The drug itself was described as being both a weapon and armour for military forces. Propaganda about the use of penicillin in infections described that when military doctors used the drug they could be “sure of their victory” over infection.²⁹ The use of penicillin to treat war wounds was not described in medical terms for the public, but was instead described as yet another ‘good versus evil’ fight that was happening on the war front. Military physicians were not just successful in treating the infection, but victorious

²⁶ Adams, “Penicillin Mystique,” 135.

²⁷ Adams, “Penicillin Mystique,” 135.

²⁸ Adams, “Penicillin Mystique,” 140.

²⁹ Gene R. Casey, “Penicillin for Everybody,” *Liberty*, July 1944, 15.

in their struggle against this microbiological force that was corrupting the bodies of American soldiers. This ideology clearly shares similarities with the way the Nazi's were described in American propaganda; in both cases the infections and the Nazi forces were described in black and white terms of being good or evil, and that American military and medical knowledge would result in the defeat of these evils.³⁰ Additionally, the link between corruption and the war effort can also be seen in the discussion of penicillin and the war. While traditional propaganda about the war effort described the war as a necessary war to protect the American way to life, the use of penicillin was similarly described as preventing or curing the corruption that soldiers faced from bacterial infections. In a sense, the propaganda was arguing that the military faced a war on multiple fronts; they needed to protect the territory of the Allied powers in a macroscopic sense, while at the same time defending the bodies of their soldiers from being breached by bacteria on the microscopic front.

At the same time that it was viewed as a powerful weapon, penicillin was also described as armour that made soldiers nearly invincible. The use of penicillin removed much of the secondary suffering that occurred on the battlefield, as it greatly reduced the incidence of wound infections.³¹ Reports came in that the work of military doctors was greatly reduced; they could simply sprinkle wounds with penicillin powder and stitch them up again, whereas before the wounds would be left open to drain, with the hope of reducing the risk of bacteremia.³² The work of military surgeons became a sort of assembly line where they could move down a row of patients repeating this procedure, which is a vast improvement from the previous laboured

³⁰ Mymark, "Newest Miracle," 68.

³¹ Keefer *et al.*, "Penicillin in the Treatment of Infections," 1223.

³² Casey, "Penicillin for Everybody," 52.

approach to treating wounds.³³ Within the media, this idea was repeated, as it seemed that the advent of penicillin had removed risk of soldiers in war—despite the fact that they could still be killed, maimed, or infected with penicillin-resistant bacteria. One striking example of the level of faith in the curative abilities of penicillin can be seen in a cartoon from 1944, which shows a soldier standing outside of the trench, in the path of bullets and missiles.³⁴ The caption, coming from a soldier hiding in the trench, reminds his fellow soldier to “get down” because penicillin “won’t cure *everything*.”³⁵ While this cartoon is clearly meant to be humorous, it shows the pervasive view that penicillin made people, particularly soldiers, invincible. Being shot or stabbed no longer seemed to hold the same danger or level of risk that it had before penicillin. This change in thinking demonstrates that the American propaganda efforts were working with regards to penicillin. It gave a narrative to the power of the American way of life, and reduced the perceived risk in fighting in the war—a notion that would be very useful in recruiting efforts. It is also interesting that the narratives surrounding penicillin were able to both make it a weapon and armour; it was both an active and passive player in the war effort.

On the home front, propaganda efforts focused on using military language to describe penicillin production, in an attempt to integrate notions of sacrifice and national pride into the issue of the lack of civilian supply. In the media, setbacks in penicillin production were described in militaristic terms. The issue of isolating the penicillin itself from the mould was a key issue in harvesting useful amounts of the drug. Articles described how the penicillin that was stuck in the un-purified solution was like a “Panzer division engulfed in a quagmire.”³⁶ The fact that the drug was being used almost exclusively for the military could have potentially caused ire

³³ Casey, “Penicillin for Everybody,” 52.

³⁴ R. Hoyt, “Get Down, McGloon! Penicillin Won’t Cure Everything!,” *Liberty*, May 1944, 67.

³⁵ Hoyt, “Get Down,” 67.

³⁶ Mymark, “Newest Miracle,” 37.

in the public, but the issue was reframed as a necessary war ration. Much in the same way that food and other goods were rationed to benefit the war effort, people were also expected to go without potentially life-saving antibiotics as part of their sacrifice for the war.³⁷ It was seen as a way for civilians to contribute to the war effort, and a necessary sacrifice to fight their enemies. Stories about the advances in the production of penicillin were described in hopeful terms, with one article describing the efforts of researchers to have more lives saved by the war than lost by it.³⁸ This re-framing of the war effort as a life-saving endeavour helped to reinforce the fact that the Americans were fighting the ‘good fight,’ and working towards a better future for everyone. This argument also implies that the positive effects of innovations with penicillin could somehow counteract the millions of lives, including innocent bystanders, which would be affected or killed by American military forces.

While the post-war goals of the American medical establishment may have been altruistic, the immediate aim of military physicians was to use penicillin for the benefit of the war effort. The public was led to believe that the government would give out what little excess penicillin they had to civilian cases; military policy indicates that this was not necessarily true. The Committee on Chemotherapy, who was responsible for the distribution of penicillin for civilians, maintained that they were gatekeeping penicillin to ensure it went to those who could actually benefit from it.³⁹ However, internal documents from the Committee on Medical Research clearly states the fact that the development of penicillin was “started and has been

³⁷ David P. Adams, “Wartime Bureaucracy and Penicillin Allocation: The Committee on Chemotherapeutic and Other Agents, 1942-44,” *Journal of the History of Medicine and Allied Sciences* 44, no. 2 (1989): 205.

³⁸ Casey, “Penicillin for Everybody,” 15.

³⁹ Adams, “Wartime Bureaucracy,” 198.

continued” as part of the war effort, and that any penicillin given to civilians had been done to gather information about its effects on infections of military interest.⁴⁰

The chairman of the Committee on Chemotherapy, Chester S. Keefer, emphasized the importance of distributing penicillin to civilians fairly, but in a way that benefitted military medical knowledge.⁴¹ Widespread issues with supply management in the face of massive shortages meant that the majority of the drug went to soldiers at the front; this meant that Keefer had to carefully manage miniscule amounts of penicillin to research its effects in a way that would not cause a public relations nightmare for the government.⁴² Civilian patients were grouped according to their severity, susceptibility to penicillin, and usefulness to research, and the committee reviewed the cases of tens of thousands of penicillin requests.⁴³ Additionally, the patient’s infection was required to be serious enough to warrant the use of penicillin, but not so serious that penicillin would not be able to reach the patient in time, or not be able to completely cure it—this reduced the chances of wasting the penicillin.⁴⁴ The drug would also only be released to physicians that were properly “accredited” to administer the drug and gather the data for the committee; civilian requests for penicillin would be denied.⁴⁵ This policy demonstrates the fact that the distribution of penicillin was heavily biased towards military benefit, as the goals of the committee focused more on gaining valuable information and preventing waste, rather than treating cases based on traditional triage methods found in hospitals. The treatment of civilians was only a by-product of the medical research; their goal was to gain information on the

⁴⁰ Chester S. Keefer, “The Present Status of Penicillin in the Treatment of Infections,” *Proceedings of the American Philosophical Society* 88, no. 3 (1944): 175.

⁴¹ Adams, “Wartime Bureaucracy,” 198.

⁴² Adams, “Wartime Bureaucracy,” 200.

⁴³ Adams, “Wartime Bureaucracy,” 200.

⁴⁴ Adams, “Wartime Bureaucracy,” 200.

⁴⁵ Adams, “Wartime Bureaucracy,” 200.

treatments of infections relevant to the war. Their efforts were focused on doing the greatest good for the war effort, not for the good of everyone.

While the efforts of Keefer were biased, and somewhat problematic, he did take care to be objective with deciding who received the drug. The system he developed worked quite well to avoid influence by outside forces such as the media, fame, and even the President.⁴⁶ Since the goal of the committee was to gain useful information about penicillin, they were largely successful in preventing outside factors from influencing their decisions. The denial of the drug, however, did not stop many people from appealing to the media and President Roosevelt in an attempt to obtain the miracle drug that could potentially save the life of their loved ones.⁴⁷ Newspapers often published stories about young children who were in need of the drug in order to convince the committee to change its mind, regardless of whether their case was susceptible.⁴⁸ The objective system did a sufficient job in denying the drug to people with non-susceptible infections, such as viral infections.⁴⁹ These requests indicated the level of faith that the public had in this miracle drug, as people hoped that it would have some impact in saving the lives of their loved ones, even when they were told it would have no effect. The real ideological issue that caused backlash from the public was the fact that many people did have susceptible illnesses, and were being denied the drug. The government and its propaganda efforts worked to benefit the war effort once again, as they appealed to the necessity of war sacrifices on the home front.

While the policy for penicillin distribution for civilians at home was very strict, the distribution of it in the military was the opposite. Since the military had the lion's share of the

⁴⁶ Adams, "Wartime Bureaucracy," 211.

⁴⁷ Adams, "Wartime Bureaucracy," 211.

⁴⁸ Adams, "Wartime Bureaucracy," 202.

⁴⁹ Adams, "Wartime Bureaucracy," 209-10.

penicillin supply, all wounded soldiers were treated, and often with very large doses. The main goal of the military doctors was to have soldiers return as quickly to the front as possible. To achieve this, they were given very large doses early on in treatment, generally by injection into the veins along with powder on open wounds.⁵⁰ The physicians tended to give large doses in an attempt to prevent a relapse, and to speed up the healing process.⁵¹ While the civilian supply of penicillin was miniscule, and carefully managed to give only just amount needed to people it would surely cure, military physicians were essentially unrestrained in their application of the drug. In addition, perhaps the most significant difference in military use of penicillin was that physicians were free to try penicillin on cases where they were not sure it would work. One such example of this can be seen in a case where a soldier had *Streptococcus empyema* (an infection in the pleural cavity), which is generally treated through surgery to slowly drain pus out of the pleural cavity.⁵² Since the normal treatment would be slow, they tried injecting penicillin into the area, which they found was able to quickly cure the soldier within 3 days.⁵³ This is an example of the ultimate goal of military medicine: a quick, painless cure-all that results in a quick return of patients to the battlefield. Penicillin in its powdered form was also very transportable, meaning that soldiers could also be treated on the battlefield itself, which greatly improved their efficiency in battle, as they would not have to transport the wounded back to physicians.⁵⁴ Soldiers could essentially treat themselves, or each other, while still fighting. This aligned with military goals, as they could use penicillin to create soldiers that were more invincible than they

⁵⁰ Casey, "Penicillin for Everybody," 16.

⁵¹ Casey, "Penicillin for Everybody," 16.

⁵² Casey, "Penicillin for Everybody," 52.

⁵³ Casey, "Penicillin for Everybody," 52.

⁵⁴ Bud, *Penicillin*, 60.

had been in any previous war. Soldiers would be able to withstand normally fatal injuries by the application of penicillin *in situ*, without jeopardizing greater military manoeuvres or personnel.

One of the most controversial military uses of penicillin was to treat venereal disease. Sexually transmitted diseases like gonorrhoea and syphilis were very common during warfare, and were a significant drain on soldiers and resources. The sexual promiscuity that came with military masculinity was a significant source of infections that prevented soldiers from fighting on the front. Gonorrhoea could be treated in mere hours, rendering it as having “less significance than a cold,” as a member of the navy remarked.⁵⁵ Penicillin effectively reduced the time in hospital for a gonorrhoeal infection from 50 days down to as little as one day, which was remarkable for military commanders.⁵⁶ It had similar effects treating syphilis, which was often difficult to treat with other agents, most of which had significant side effects.⁵⁷ This advance in treatment had such potential in efficiently returning soldiers to a battle-ready state, that military surgeons were told that during times of penicillin shortage the “victims of the bordello” had priority.⁵⁸ In their view it was more prudent to focus their efforts on curing a case of venereal disease, rather than potentially waste money on rehabilitating a wounded soldier that may never be able to fight again. Once again, this shows that the goal of military medicine was to keep the number of viable soldiers as high as possible to serve military goals, not to treat the most serious cases of infections.

While the use of penicillin to treat venereal diseases seemed to be the most efficient use of military penicillin resources, it also drew criticism by those outside of the military. It was difficult for many civilians to accept the fact that the military used up a significant amount of

⁵⁵ Bud, *Penicillin*, 58.

⁵⁶ Casey, “Penicillin for Everybody,” 52.

⁵⁷ Bud, *Penicillin*, 58.

⁵⁸ Bud, *Penicillin*, 58.

their supply of penicillin to treat venereal disease, when civilians at home were dying from “respectable” infections that were not caused by “carelessness” or promiscuity.⁵⁹ While it was prudent for the military to focus on the most easily curable infections in soldiers, it was seen by some as a reinforcement of ideals that did not align with wholesome American life. It could be seen as aiding in the corruption of the soldiers, many of whom were young, by giving them a quick and easy cure for their sinful acts. Due to the shortage in penicillin, many saw the use of penicillin to treat venereal disease as preventing another person with a more legitimate infection from treatment; this was, in fact, true in many cases.⁶⁰ What this view failed to grasp was the fact that the focus of the production of penicillin was to benefit the war, regardless of its potential civilian uses. As previously mentioned, the civilian rations of penicillin were for research purposes only, to benefit military medical knowledge. Penicillin during wartime was not seen as a neutral drug used to treat humanity, but a tool used to protect their soldiers from infection so that they could go on to win the war. Of course, the government did not broadcast this view, as they needed the civilians on the home front to support the war effort. As a result, the propaganda stories surrounding penicillin use in the battlefield focused on soldiers who were wounded in battle, and were rewarded for their sacrifice by being cured with penicillin.⁶¹ This narrative was more palatable for the public, and fit in with ideas about protecting the American way of life, and the brave souls that risked their lives to protect it.

The use of propaganda that portrayed penicillin as a miraculous drug that cured every modern illness, combined with wartime civilian shortages, set the stage for issues after the war. After the war ended and production of penicillin increased, the use of penicillin to treat illnesses

⁵⁹ Bud, *Penicillin*, 104.

⁶⁰ Adams, “Wartime Bureaucracy,” 216.

⁶¹ Shama, “The Role of the Media,” 150.

skyrocketed. The propaganda that described penicillin as a miracle cure-all had cemented the idea of penicillin's effects in the minds of civilians, and the end of wartime scarcity meant that the public wanted to use it. Civilian patients requested penicillin to treat everything, and doctors over-prescribed it, as both groups were overtaken by "antibiotic abandon."⁶² Additionally, the perception that penicillin made people invincible to infections led to a relaxation in the aseptic techniques used in hospitals, as medical personnel could prevent infection by using penicillin rather than painstakingly following proper hygiene.⁶³ The view that penicillin was both a weapon and armour presents itself again in the post-war era, and it was used with reckless abandon. It was even sprayed into hospital wards as a way to prevent the spread of infections among patients.⁶⁴ It was also heralded a miracle of American innovation in the post-war United States, and it was presented in the media as yet another example of the advances in the "post-war utopia" that promised peace and prosperity to civilians.⁶⁵

This antibiotic utopia would not last long, however, as the overuse of penicillin quickly led to its demise. The ubiquity of penicillin in the environment meant that a significant number of microbes that were easily killed by penicillin were gaining a resistance to it. By 1948—only a few years after the war—up to 59% of strains of *Staphylococci* were found to have genes for penicillin resistance.⁶⁶ It is evident that the American government politicized penicillin to further their ideological and military goals during World War II. Their efforts were both responsible for its rise in popularity as a miracle cure, and its subsequent demise through overuse and resistance.

⁶² Adams, "Penicillin Mystique," 140.

⁶³ Wainwright, *Miracle Cure*, 99.

⁶⁴ Bud, *Penicillin*, 99.

⁶⁵ Adams, "Penicillin Mystique," 138.

⁶⁶ Wainwright, *Miracle Cure*, 85.

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