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### Cinematic Portrayal of Infectious Disease Outbreaks

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## Background

Movies, which have remained a shared cultural experience over the last century, provide an interesting medium with which to explore our communal interest in infectious disease outbreaks and pandemics. We all share the primal fear of the unknown these engender, as well the uncomfortable realism they convey when projected onto the silver screen. Cinema is a medium with an unmatched ability to connect with large segments of a population. One movie earning \$250 million at the box office, for example, may result in over 30 million ticket sales (using mean ticket prices from 2016) [MPAA]. By comparison, paid subscriptions to the New York Times in 2019 (digital and print) were only 1/6 of this [Lee]. When viewings on digital platforms are considered (though harder to quantify, e.g. Netflix, Amazon) this number may increase by orders of magnitude. Cinema is also capable of influencing behaviors. Adolescent viewing of cinematic content depicting underage drinking, smoking or unsafe sexual practices is associated with an increased likelihood of adopting such practices, after controlling for pre-existing practices and other social factors [Hanewinkel, O'Hara, Morgenstern].

Given the unprecedented global effects wrought by the COVID-19 pandemic, public health sacrifices are being requested of many societies (e.g. social distancing, closures of businesses, mandatory use of face masks, etc). How society adapts to such requests from government officials, and how they respond to future efforts at outbreak control (e.g. acceptance of a vaccine for the novel SARS-CoV-2, punishments for failed social distancing, etc.) could be influenced by depictions of such efforts in movies. As a result, cinematic depictions of infectious disease outbreaks and pandemics over the last century were analyzed for common themes and to gain insights into how such depictions have changed over time.

## Objectives

- 1.) Identify common themes in American movies depicting infectious disease outbreaks and pandemics over the last century
- 2.) Describe any changes in the depiction of such themes over time

## Methods

A search of IMDb using 149 search terms related to infectious-disease conducted in November of 2017 [Auwen] was updated in February and March of 2020 with the use of 163 terms, and limited to films with a major emphasis on infectious diseases (through December 31, 2019). This identified 373 domestically and theatrically-released films. Plot synopses were subsequently reviewed on IMDb, the American Film Institute database or Wikipedia). Of the 373 films, 142 (38.1%) featured a depiction a lay audience would likely associate with an infectious disease outbreak (increase in expected cases of an infectious disease in a given population and area) or pandemic (an outbreak spreading over multiple countries). For a film to be eligible, the depicted outbreak or pandemic was required to be a major component of the film. In addition, eligible films were required to demonstrate cultural relevance (box office earnings  $\geq$ \$10 million (adjusted to 2019, equating to  $\geq$ 1 million tickets sold), recipient of an Academy Award or with  $\geq$ 1 IMDb long-gap connections)). Long-gap connections are recorded when a cultural reference to a film occurs (e.g. in another movie or on television)  $\geq$ 25 years after the film was first released, and is suggestive of sustained cultural relevance [Wasserman]. All eligible films were viewed in their entirety and analyzed thematically.

## Results

Overall, 142 films featured an outbreak or pandemic (released from 1914 through 2019), 80 of which were deemed culturally relevant and viewed. Ten films won academy awards. Eight of the nine earliest films (1914-1957) featured a theme of the selfless physician, who often risked their life in order to save their patients. However, following the launch of Sputnik in 1957, films took a darker turn, with many negative themes (Table below) becoming increasingly prominent. Only one film featured a negative theme (below) prior to 1957.

**Table Common themes in Infectious Disease Outbreak and Pandemic Films (1914-2019)**

Theme (# films)	Examples	Comments
Dehumanization (29)	'Resident Evil', 'World War Z'	Commonly 'zombification'. Infected are objects undeserving of sympathy and recipients and perpetrators of violence.
Biowarfare (28)	'The Omega Man', 'Inferno'	Apocalyptic post-pandemic change in social order.
Failed Leadership (20)	'The Crazies', 'Doomsday'	Government turns against its citizens to contain outbreaks.
Stigmatization (19)	'Philadelphia', 'Longtime Companion'	Prominent in HIV/plague films; stigmatization/ostracism of the infected.
Social Class and Disparities (18)	'Contagion', 'World War Z'	Elites unsuccessfully self-quarantine; some receive privileged access to protections unavailable to others.
Selfless Physician (16)	'Arrowsmith', 'The Green Light'	Sacrifice of male physicians.

Table adapted from reference 8 [Dehority]

## Discussion

Of the six most common themes identified during the cinematic review, five were negative (dehumanization, biowarfare, failed leadership, stigmatization of the other and a widening of social classes and social disparities). Only one film featured any of these themes prior to 1957, an era which was dominated by movies featuring portrayals of the 'selfless physician'. Increasingly, the emphasis changed from our mastery of infectious diseases (by physicians and science) to the mastery of humanity by infectious diseases (as depicted by apocalyptic images of zombie-infested landscapes). A growing mistrust of leadership was also increasingly displayed. Earlier films (pre-1957) portrayed a trustworthy government bent on eradicating the infection in question. Increasingly, however, the infection in question was often portrayed as originating from the government (e.g. outbreaks released from a government laboratory where unethical research is being conducted, or attempted cover-ups of the damage inflicted by the pathogen). Perhaps most notable was an increase in the number of movies featuring the theme of 'dehumanization', whereby an infected individual is typically transformed into a sub-human lifeform (e.g. a zombie). The infected are portrayed as objects worthy only of destruction and inciting only fear. Indeed, 78% of such films were released in the last two decades. When lumped with the theme of stigmatization (48 films total), one-third of all identified films portrayed the infected in a negative or fearful light, which may speak more to our society than to the infections such films depict. Sadly, these events have found a home in reality, be it President Trumps' use of the term 'Chinese flu' to describe COVID-19, or references to hantavirus as the 'Navajo flu' by the press in the early 1990's.

COVID-19 will undoubtedly produce a bevy of pandemic related films (three are already in pre-production). How the virus is portrayed in these movies ultimately may be dependent upon how we as a society respond to the challenge now before us.

## References

- 1.) Motion Picture Association of America. Theatrical market statistics, 2016. [https://www.mpa.org/wp-content/uploads/2017/03/MPAA-Theatrical-Market-Statistics-2016\\_Final.pdf](https://www.mpa.org/wp-content/uploads/2017/03/MPAA-Theatrical-Market-Statistics-2016_Final.pdf). Accessed February 14, 2019.
- 2.) Lee E. New York Times company continues to add online subscribers as digital advertising grows. The New York Times. <https://www.nytimes.com/2019/05/08/business/media/new-york-times-company-earnings.html>. Published May 8, 2019. Accessed 20 May 2019.
- 3.) Hanewinkel R, Sargent JD, Hunt K, et al. Portrayal of alcohol consumption in movies and drinking initiation in low-risk adolescents. *Pediatrics*. 2014;133:973-985.
- 4.) O'Hara RE, Gibbons FX, Li Z, Gerrard M, Sargent JD. Specificity of early movie effects on adolescent sexual behavior and alcohol use. *Soc Sci Med*. 2013;96:200-207.
- 5.) Morgenstern M, Poelen EA, Scholte R, et al. Smoking in movies and adolescent smoking initiation: longitudinal study in six European countries. *Am J Prev Med*. 2013;44:339-344.
- 6.) Auwen A, Emmons M, Dehority W. Portrayal of immunization in American Cinema: 1925 to 2016. *Clin Pediatr*. 2020;59(4-5):360-368.
- 7.) Wasserman M, Zeng XHT, Amaral LAN. Cross-evaluation of metrics to estimate the significance of creative works. *Proc Natl Acad Sci USA*. 2015;112:281-1286.
- 8.) Dehority W. Infectious disease outbreaks, pandemics and Hollywood: Hope and fear across a century of cinema. *JAMA*. 2020;doi:10.1001/jama.2020.7187. PMID 32329765.

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