A year in review in infectious diseases 2020

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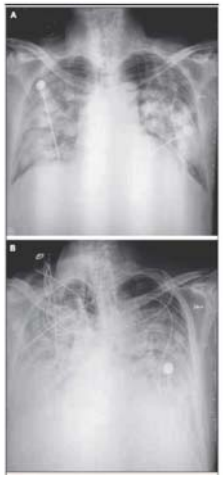
The NEW ENGLAND JOURNAL of MEDICINE

BRIEF REPORT

A Novel Coronavirus from Patients with Pneumonia in China, 2019

- Three adult patients presented with severe pneumonia and were admitted to a hospital in Wuhan on December 27, 2019.
- Patient 1 was a 49-year-old woman. She reported having no underlying chronic medical conditions but reported fever (temperature, 37°C to 38°C) and cough with chest discomfort on December 23, 2019. Four days after the onset of illness, her cough and chest discomfort worsened, but the fever was reduced; a diagnosis of pneumonia was based on computed tomographic (CT) scan. Her occupation was retailer in the seafood wholesale market.
- Patient 2 was a 61-year-old man. He initially reported fever and cough on December 20, 2019; respiratory distress developed 7 days after the onset of illness and worsened over the next 2 days (see chest radiographs, Fig. 1), at which time mechanical ventilation was started. He had been a frequent visitor to the seafood wholesale market. Patient 2 died on January 9, 2020.
- Patient 3 was a 32-year-old man.
- Patients 1 and 3 recovered and were discharged from the hospital on January 16, 2020.



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DOI: 10.1056/NEJMoa2001017

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ORIGINAL ARTICLE

Remdesivir for the Treatment of Covid-19 — Preliminary Report

CONCLUSIONS

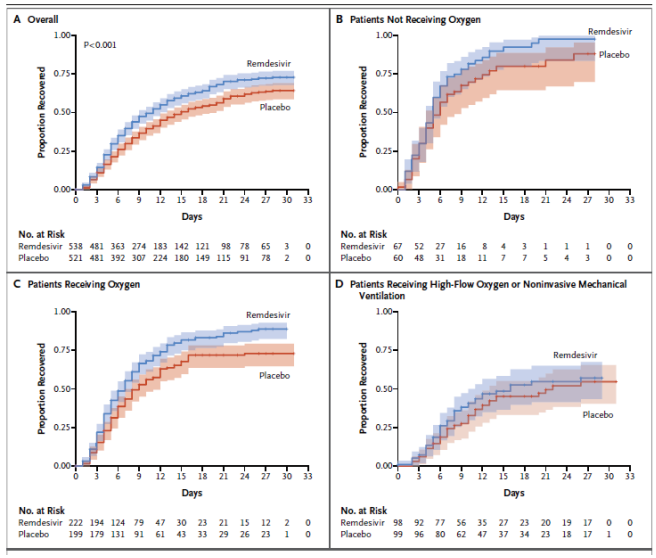
Remdesivir was superior to placebo in shortening the time to recovery in adults hospitalized with Covid-19 and evidence of lower respiratory tract infection.

Beigel JH, Tomashek KM, Dodd LE, et al. N Engl J Med. DOI: 10.1056/NEJMoa2007764.

Remdesivir for the Treatment of Covid-19 — Preliminary Report

remdesivir (200 mg loading dose on day 1, followed by 100 mg daily for up to 9 additional days) or placebo for up to 10 days.

- A total of 1063 patients underwent randomization.
- Preliminary results from the 1059 patients (538 assigned to remdesivir and 521 to placebo) with data available after randomization indicated that those who received remdesivir had a median recovery time of 11 days (95% confidence interval [CI], 9 to 12), as compared with 15 days (95% CI, 13 to 19) in those who received placebo (rate ratio for recovery, 1.32; 95% CI, 1.12 to 1.55; P<0.001).
- The Kaplan-Meier estimates of mortality by 14 days were 7.1% with remdesivir and 11.9% with placebo (hazard ratio for death, 0.70; 95% CI, 0.47 to 1.04).
- Serious adverse events were reported for 114 of the 541 patients in the remdesivir group who underwent randomization (21.1%) and 141 of the 522 patients in the placebo group who underwent randomization (27.0%).



JAMA | Original Investigation | CARING FOR THE CRITICALLY ILL PATIENT

Association Between Administration of Systemic Corticosteroids and Mortality Among Critically Ill Patients With COVID-19
A Meta-analysis

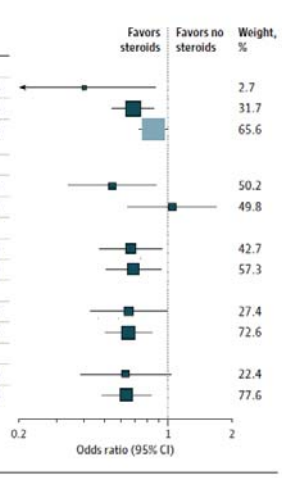
The WHO Rapid Evidence Appraisal for COVID-19 Therapies (REACT) Working Group

Conclusions and Relevance In this prospective meta-analysis of clinical trials of critically ill patients with COVID-19, administration of systemic corticosteroids, compared with usual care or placebo, was associated with lower 28-day all-cause mortality.

The WHO Rapid Evidence Appraisal for COVID-19 Therapies (REACT) Working Group. *JAMA* 2020 Sep 2; [e-pub]. (https://doi.org/10.1001/jama.2020.17023)

Figure 3. Association Between Corticosteroids and 28-Day All-Cause Mortality Within Subgroups Defined by Patient Characteristics at the Time of Randomization

Subgroup	No. of deaths/total No. of patients: Steroids	No. of deaths/total No. of patients: No steroids	Odds ratio (95% CI)	Weight, %
Invasive mechanical ventilation (IMV)				
No (I^2 = 0%)	14/70	28/74	0.41 (0.19-0.88)	2.7
Yes (I^2 = 44.1%)	208/608	397/951	0.69 (0.55-0.86)	31.7
Oxygen treatment without IMV (RECOVERY)	298/1279	682/2604	0.86 (0.73-1.00)	65.6
Taking vasoactive medication				
No (I^2 = 0%)	51/184	68/184	0.55 (0.34-0.88)	50.2
Yes (I^2 = 0%)	76/169	74/158	1.05 (0.65-1.69)	49.8
Age, y				
≤60 (I^2 = 0%)	72/338	141/483	0.67 (0.48-0.94)	42.7
>60 (I^2 = 49.7%)	150/339	284/541	0.69 (0.51-0.93)	57.3
Sex				
Female (I^2 = 0%)	60/202	106/286	0.66 (0.43-0.99)	27.4
Male (I^2 = 14.7%)	162/476	319/739	0.66 (0.51-0.84)	72.6
Symptomatic, d				
≤7 (I^2 = 69.1%)	51/130	99/211	0.63 (0.39-1.04)	22.4
>7 (I^2 = 0%)	139/418	293/693	0.64 (0.49-0.83)	77.6



Clinical Infectious Diseases
MAJOR ARTICLE

A Comparison Between 12 Versus 20 Weeks of Trimethoprim-sulfamethoxazole as Oral Eradication Treatment for Melioidosis: An Open-label, Pragmatic, Multicenter, Non-inferiority, Randomized Controlled Trial

Siriluck Anunnatsiri,[1,2] Wipada Chaowagul,[3] Prapit Teparrukkul,[3] Ploenchan Chetchotisakd,[1,2] Kittisak Tanwisaid,[4] Supphachoke Khemla,[4] Surapong Narenpitak,[5] Moragot Pattarapongsin,[6] Wirod Kongsawasd,[7] Pornrith Pisuttimarn,[8] Wilawan Thipmontree,[9] Piroon Mootsikapun,[1] Seksan Chaisuksant,[8] Wirongrong Chierakul,[10] Nicholas P.J. Day,[11] and Direk Limmathurotsakul[10,11,©]

Conclusions. Based on the lower total mortality and noninferiority of the secondary composite end point observed, we recommend the 12-week regimen of TMP-SMX for oral eradication treatment of melioidosis.

Anunnatsiri et al. Clin Infect Dis 2020;XX:0-0

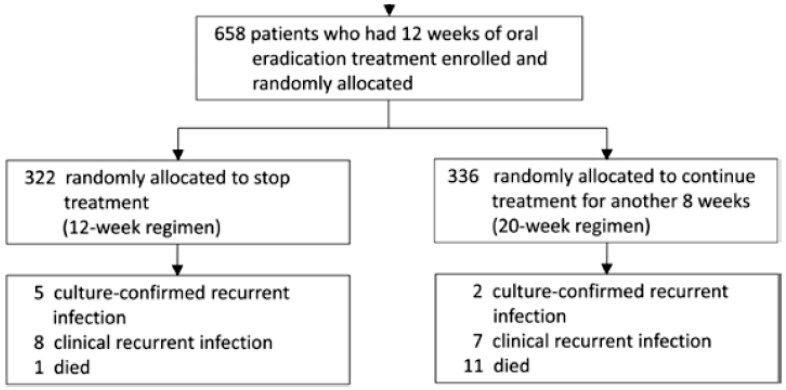
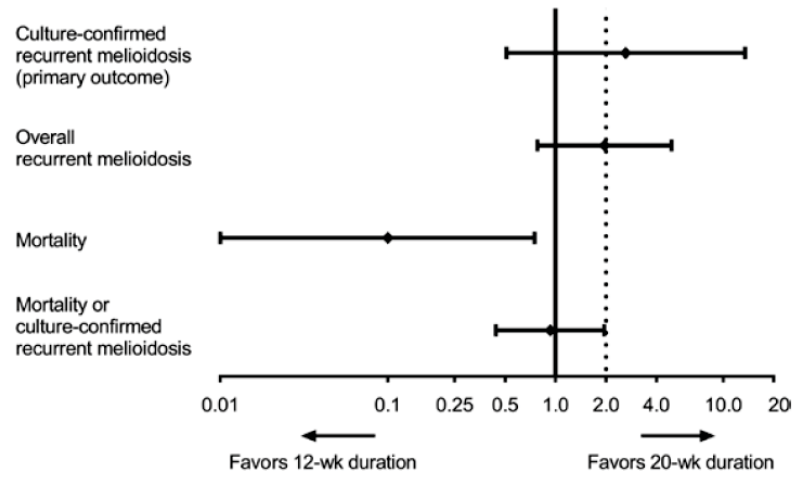


Table 2. Outcomes of the Study

	12-Week Group, n = 322	20-Week Group, n = 336	HR (95% CI)
Recurrent melioidosis			
Culture-confirmed	5 (2)	2 (1)	2.66 (.52–13.69)
Clinical	8 (2)	5 (1)	
Overall	13 (4)	7 (2)	1.99 (.79–4.98)
Mortality			
Due to recurrent melioidosis	1 (.3)	3 (1)	
Due to other causes[a]	0 (0)	8 (2)	
Overall	1 (.3)	11 (3)	.10 (.01–.74)
Recurrent melioidosis or mortality			
Overall	13 (4)	15 (4)	.93 (.44–1.96)



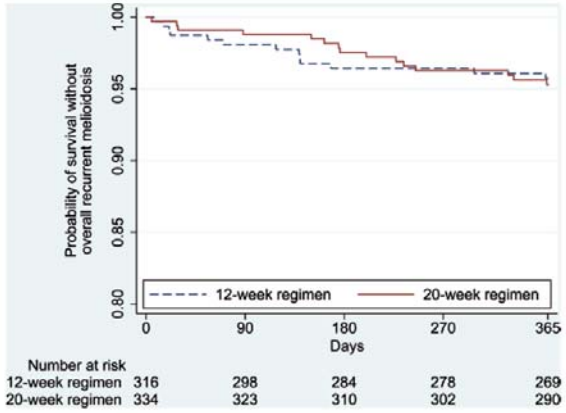


Figure 3. Kaplan-Meier curves of probability without overall recurrent melioidosis and mortality.

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ORIGINAL ARTICLE

HPV Vaccination and the Risk of Invasive Cervical Cancer

CONCLUSIONS

Among Swedish girls and women 10 to 30 years old, quadrivalent HPV vaccination was associated with a substantially reduced risk of invasive cervical cancer at the population level.

N Engl J Med 2020; 383:1340–1348 DOI: 10.1056/NEJMoa1917338

Table 2. HPV Vaccination and Invasive Cervical Cancer.

HPV Vaccination Status	No. of Cases of Cervical Cancer	Crude Incidence Rate per 100,000 Person-Yr (95% CI)	Age-Adjusted Incidence Rate Ratio (95% CI)	Adjusted Incidence Rate Ratio (95% CI)*
Unvaccinated	538	5.27 (4.84–5.73)	Reference	Reference
Vaccinated	19	0.73 (0.47–1.14)	0.51 (0.32–0.82)	0.37 (0.21–0.57)
Status according to age cutoff of 17 yr				
Vaccinated before age 17 yr	2	0.10 (0.02–0.39)	0.19 (0.05–0.75)	0.12 (0.00–0.34)
Vaccinated at age 17–30 yr	17	3.02 (1.88–4.86)	0.64 (0.39–1.04)	0.47 (0.27–0.75)
Status according to age cutoff of 20 yr				
Vaccinated before age 20 yr	12	0.49 (0.28–5.73)	0.52 (0.29–0.94)	0.36 (0.18–0.61)
Vaccinated at age 20–30 yr	7	5.16 (2.46–10.83)	0.50 (0.24–1.06)	0.38 (0.12–0.72)

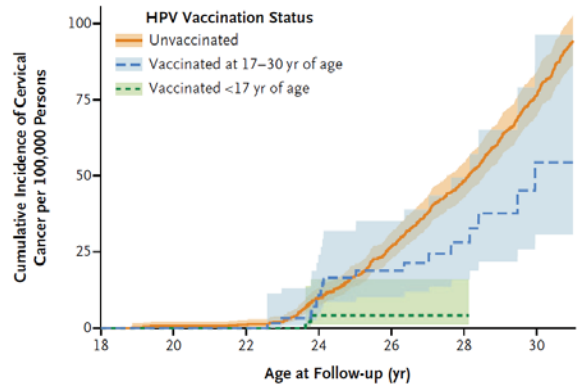


Figure 2. Cumulative Incidence of Invasive Cervical Cancer According to HPV Vaccination Status.

Age at follow-up is truncated in the graph because no cases of cervical cancer were observed in girls younger than 18 years of age.

ORIGINAL ARTICLE

Compression Therapy to Prevent Recurrent Cellulitis of the Leg

Elizabeth Webb, M.P.H., Teresa Neeman, Ph.D., Francis J. Bowden, M.D., Jamie Gaida, Ph.D., Virginia Mumford, Ph.D., and Bernie Bissett, Ph.D.

CONCLUSIONS

In this small, single-center, nonblinded trial involving patients with chronic edema of the leg and cellulitis, compression therapy resulted in a lower incidence of recurrence of cellulitis than conservative treatment.

N Engl J Med 2020;383:630-9. DOI: 10.1056/NEJMoa1917197

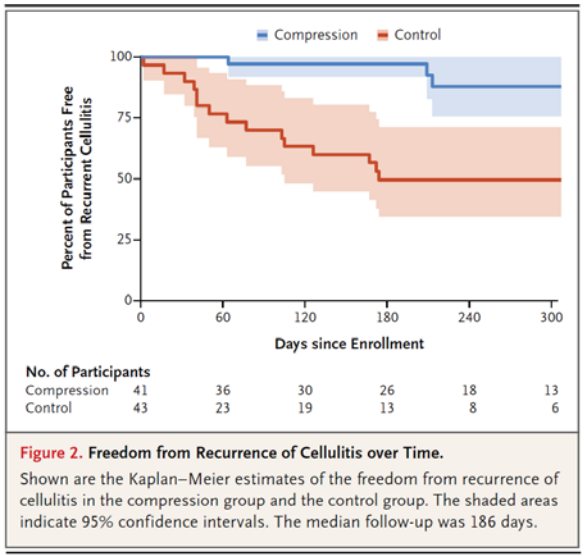


Figure 2. Freedom from Recurrence of Cellulitis over Time.

Shown are the Kaplan–Meier estimates of the freedom from recurrence of cellulitis in the compression group and the control group. The shaded areas indicate 95% confidence intervals. The median follow-up was 186 days.

Impact of duration of antibiotic therapy in central venous catheter-related bloodstream infection due to Gram-negative bacilli

María Ruiz-Ruigómez [1]*, Mario Fernández-Ruiz[1], Rafael San-Juan [1], Francisco López-Medrano[1], María Ángeles Orellana[2], Laura Corbella[1], Isabel Rodríguez-Goncer[1], Pilar Hernández Jiménez[1] and José María Aguado[1]

Conclusions: The administration of appropriate antibiotic therapy for 7 days may be as safe and effective as longer courses in episodes of GNB CRBSI once the CVC has been removed.

J Antimicrob Chemother 2020; 75: 3049–3055

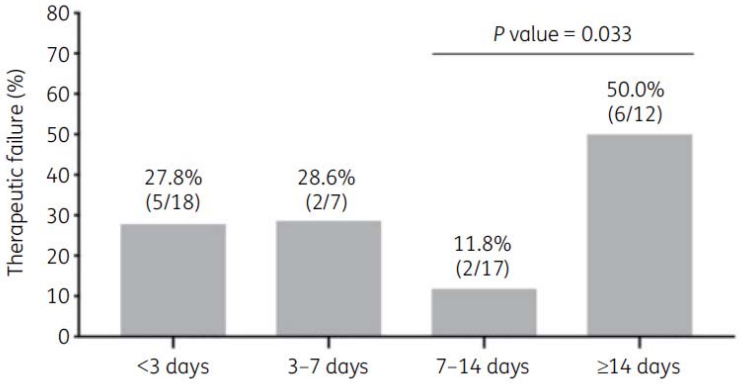
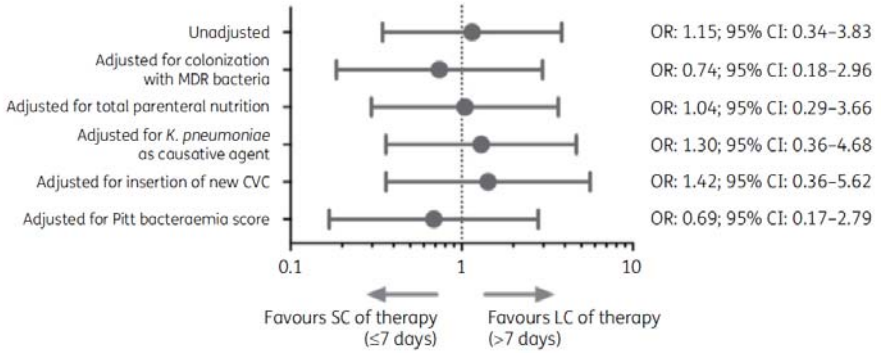


Figure 1. Proportion of episodes experiencing therapeutic failure according to the duration of appropriate antibiotic therapy stratified in increasing categories.



JAMA | Original Investigation

Effect of C-Reactive Protein–Guided Antibiotic Treatment Duration, 7-Day Treatment, or 14-Day Treatment on 30-Day Clinical Failure Rate in Patients With Uncomplicated Gram-Negative Bacteremia

A Randomized Clinical Trial

CONCLUSIONS AND RELEVANCE Among adults with uncomplicated gram-negative bacteremia, 30-day rates of clinical failure for CRP-guided antibiotic treatment duration and fixed 7-day treatment were noninferior to fixed 14-day treatment.
However, interpretation is limited by the large noninferiority margin compared with the low observed event rate, as well as low adherence and wide range of treatment durations in the CRP-guided group.

JAMA. 2020;323(21):2160-2169. doi:10.1001/jama.2020.6348

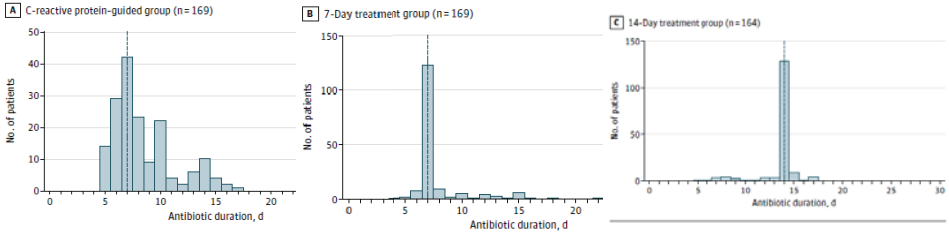


Table 3. Clinical Outcomes in a Study of the Effect of C-Reactive Protein (CRP)–Guided, 7-Day, or 14-Day Antibiotic Treatment Duration on Clinical Failure in Patients With Gram-Negative Bacteremia

Outcome	Antibiotic therapy duration group, No. (%)			CRP-guided vs 14 d		7 d vs 14 d	
	CRP-guided (n = 169)	7 d (n = 169)	14 d (n = 165)	Difference, % (1-sided 97.5% CI)	*P* value[a]	Difference, % (1-sided 97.5% CI)	*P* value[a]
Primary outcome							
Clinical response through day 30				−3.1 (−∞ to 1.1)	<.001	1.1 (−∞ to 6.3)	<.001
Clinical success	160 (97.6)	155 (93.4)	154 (94.5)				
Clinical failure	4 (2.4)	11 (6.6)	9 (5.5)				
Recurrent bacteremia	0	1 (9)[a]	2 (22)				
Suppurative local complication	0	2 (18)[b]	1 (11)				
Distal complication	0	0	0				
Targeted therapy restart	2 (50)	3 (27)	2 (22)				
30-d all-cause mortality[c]	2 (50)	6 (55)	4 (44)				
Missing[d]	5 (2.9)	3 (1.8)	2 (1.2)				

Combination therapy with rifampicin or fosfomycin in patients with *Staphylococcus aureus* bloodstream infection at high risk for complications or relapse: results of a large prospective observational cohort

Conclusions: In patients with implanted foreign devices, combination therapy was associated with a better long-term outcome. Larger prospective studies are needed to validate these findings.

Reig S et al. J Antimicrob Chemother 2020; 75: 2282–2290

Table 2. Inverse probability-weighted MSCM including treatment as time-dependent covariate ($n = 578$ patients)

	90 day mortality			Death or SAB-related late complications within 180 days		
Variable/subgroup	HR	95% CI	*P*	HR	95% CI	*P*
Treatment						
MoTh	1			1		
CoTh	0.69	0.47–1.02	0.061	**0.65**	**0.46–0.92**	**0.016**
Age (years)	**1.02**	**1.01–1.04**	**0.002**	**1.02**	**1.01–1.04**	**0.001**
Charlson score	**1.28**	**1.19–1.38**	**<0.001**	**1.23**	**1.15–1.31**	**<0.001**

Table 3. Inverse probability-weighted MSCM including treatment as time-dependent covariate, stratified by the subgroups of implanted foreign devices (*in situ* or infected), osteoarticular infections and infective endocarditis

	90 day mortality			Death or SAB-related late complications within 180 days		
Variable/subgroup	HR	95% CI	*P*	HR	95% CI	*P*
Implanted foreign devices (*in situ* or infected, $n = 378$)						
treatment						
MoTh ($n = 219$)	1			1		
CoTh ($n = 159$)	**0.57**	**0.36–0.91**	**0.020**	**0.53**	**0.35–0.79**	**0.002**
Osteoarticular infections ($n = 214$)						
treatment						
MoTh ($n = 49$)	1			1		
CoTh ($n = 165$)	0.59	0.29–1.21	0.153	0.74	0.43–1.28	0.283
Endocarditis ($n = 129$)						
treatment						
MoTh ($n = 32$)	1			1		
CoTh ($n = 97$)	0.93	0.41–2.10	0.859	1.20	0.52–2.79	0.674