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Supplemental Information

A comprehensive analysis of the efficacy

and safety of COVID-19 vaccines

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Figure S1. PRISMA diagram of articles selected for meta-analysis (A) Part 1: The landscape of efficacy and safety of COVID-19 vaccines. (B) Part 2: The severe and rare ADRs of COVID-19 vaccines.



Figure S2. Forest plot of the efficacy of COVID-19 vaccine. Meta-analysis was performed using R statistical software. Event rates and their corresponding 95% confidence intervals were estimated using both a fixed-effects model and a random-effects model. (A) vaccine group stratified by vaccine type (B) placebo group stratified by vaccine type (C) vaccine group stratified by age (D)

placebo group stratified by age (E) vaccine group stratified by gender (F) placebo group stratified by gender (G) vaccine group stratified by race (H) placebo group stratified by race.



Figure S3. Forest plot of the incidence of ADRs after dose 1 (subgroups by vaccine type). Metaanalysis was performed using R statistical software. Event rates and their corresponding 95% confidence intervals were estimated using both a fixed-effects model and a random-effects model. (A) pain (B) swelling (C) fever (D) fatigue (E) chills (F) Muscle pain(myalgia) (G) Joint pain(arthralgia) (H) headache.

А	Dose1— pain(subgroups b	y age)	В	Dose1— swelling(subgroup	s by age)
	Study Events Total P	roportion 95%-CI		Study Events Total	Proportion 95%-Cl
	subgroup = 16 to 65 years old BNT 162b2 3019 4722 mRNA12730/Moderna) 9908 11406 Z2D1222 30 49 Fixed effect model 16177 Random effects model Heterogenety: I ² = 99%, ² = 0.2849, p < 0.01	0.8299 [0.8189; 0.8406] 0.8697 [0.8623; 0.8748] 0.8122 [0.4624; 0.7480] 0.8566 [0.8511; 0.8619] 0.8000 [0.6778; 0.8838]		subgroup = 16 to 55 years old 1 BNT162b 283 4722 mRNA1273(Moderna) 763 11406 AZD122 0 491 Fixed offsct model 16177 Random effects model 16177 Hetrogeneity, I ² = 18%, I ² = 0.0012, p = 0.23 0	0.0599 [0.0533; 0.0671] 0.0672 [0.0627; 0.0720] 0.0000 [0.0000; 0.0725] 0.0649 [0.0612; 0.0688] 0.0643 [0.0587; 0.0703]
	subgroup = over 55 years old BNT162b2 2457 3461 □ mRNA12730/doema) 2782 3762 □ Fried effect model 7302 • Random effects model 4460 0000 • 10%, f = 0.7191, p < 0.01	0.7099 [0.6945; 0.7250] 0.7395 [0.7252; 0.7535] 0.2911 [0.1943; 0.4042] 0.7206 [0.7102; 0.7308] 0.5935 [0.3553; 0.7945]		subgroup = over 65 years old BNT162b 2 24 2461 mRNA1273(Moderna) 165 3702 AZD122 2 79 Fixed offect model 7302 Random affects model Hetrogeneity: 1° = 85%, r ≤ 0.0605, p < 0.01	0.0699 [0.0616; 0.0789] 0.0439 [0.0375; 0.0509] 0.0253 [0.0031; 0.0851] 0.0660 [0.0510; 0.0615] 0.0525 [0.0374; 0.0731]
	Fixed effect model 23479 \vdots 4 Random effects model Heterogeneity: $l^2 = 0.7570, p < 0.501$ 1 1 1 1 1 1 1 1 1	0.8143 [0.8093; 0.8192] 0.7022 [0.5374; 0.8271]		Fixed effect model 23479 Random effects model	0.0621 [0.0591; 0.0653] 0.0569 [0.0466; 0.0691]
С	Dose1— fever(subgroups b	oy age)	D	Dose1— fatigue(subgroup	s by age)
	Study Events Total	Proportion 95%-CI		Study Events Total	Proportion 95%-Cl
	subgroup = 16 to 55 years old ■ BNT162b2 ■ 4722 mRNA1273/Modema) 105 11400 ■ AZD1222 ■ ■ Fixed effect model 16177 ■ Random effects model 16177 ■ Heterogeneity: /² = 90%, ² = 2.0003, p < 0.01	0.0400 [0.0346; 0.0460] 0.0092 [0.0075; 0.0111] 0.2449 [0.1334; 0.3867] 0.0189 [0.0169; 0.0211] 0.0458 [0.0094; 0.1949]		aubgroup = 16 to 55 years old Image: Strange old BNT 162/2 22 19 4722 mRNA 1273(Moderna) 4384 11406 AZD 122 37 49 Fixed effect model 16177 ★ Random effects model 16177 ★ Heterogeneity: J ² = 100%, J ² = 0.3740, ρ < 0.01	0.4699 [0.4556; 0.4843] 0.3844 [0.3754; 0.3834] - 0.7551 [0.6113; 0.8668] 0.4105 [0.4029; 0.4181] 0.5272 [0.3499; 0.6979]
	subgroup = over 55 years old BNT162b2 35 3461 ∎ MRN41273(Moderna) 10 3782 ∎ AZD1222 0 791 ■ Fixed affrect model 7302 ↓ Random affrects model Heterogenety, /* = 77%, ² = 0.3990, p < 0.01	0.0101 [0.0071; 0.0140] 0.0027 [0.0013; 0.0049] 0.0000 [0.0000; 0.0458] 0.0062 [0.0046; 0.0062] 0.0049 [0.0019; 0.0123]		$\begin{tabular}{lllllllllllllllllllllllllllllllllll$	0.3401 [0.3243; 0.3561] 0.3325 [0.3175; 0.3478] 0.4430 [0.3312; 0.5592] 0.3373 [0.3265; 0.3482] 0.3373 [0.3265; 0.3482]
	Fixed effect model 23479 1 Random effects model	0.0149 [0.0135; 0.0166] 0.0147 [0.0036; 0.0571]		Fixed effect model 23479 Random effects model	0.3877 [0.3815; 0.3940] 0.4408 [0.3392; 0.5476]
Е	Dose1— chills(subgroups b	oy age)	F	Dose1— muscle pain(subgrou	ips by age)
	Study Events Total F	Proportion 95%-Cl		Study Events Total	Proportion 95%-CI
	subgroup = 16 to 55 years old BNT162b2 BNT162b2 AZD1222 17 49 Fixed effect model 16177 Random effects model Heterogeneity: / ² = 99%, f = 0.3898, p < 0.01	0.1400 [0.1302; 0.1502] 0.0921 [0.0869; 0.0976] 0.3469 [0.2167; 0.4964] 0.1069 [0.1022; 0.1117] 0.1615 [0.0842; 0.2875]		aubgroup = 16 to 55 years old BNIT620 = 202 4722 = mRNA1273(Modema) 2690 11406 = ZD1222 26 49 Fixed effect model 16177 = Random effects model Hebrogenely; i ² = 09%; i ² = 0.3343, g < 0.01	0.2101 [0.1985; 0.2220] 0.2366 [0.2289; 0.2445] 0.5306 [0.3827; 0.6747] 0.2298 [0.2234; 0.2363] 0.2984 [0.1765; 0.4578]
	subgroup = over 65 years old BNT182b = 208 3461 mRN41273(Moderna) 202 3762 420 122 570 Fixed effect model 7302 Random effects model Heterogenetry, $F^2 = O_{10}^{2}, e^2 = 0, p = 0.49$	0.0601 [0.0524; 0.0685] 0.0537 [0.0467; 0.0614] 0.0633 [0.0206; 0.1416] 0.0568 [0.0518; 0.0624] 0.0568 [0.0518; 0.0624]		subgroup = over 55 years old BNT162b2 485 3461 MRNN1273(Moderna) 742 3762 AZD1222 20 79 Fixed affect model 7302 Random effects model Heberogeneity: 79 95%, 7 = 0.0548, p < 0.01	0.1401 [0.1287; 0.1521] 0.1972 [0.1846; 0.2103] 0.2532 [0.1620; 0.3636] 0.1708 [0.1623; 0.1796] 0.1805 [0.1388; 0.2313]
	Fixed effect model 23479	0.0913 [0.0877; 0.0951]		Fixed effect model 23479	0.2114 [0.2062; 0.2167]
	Random effects model Heterogeneity: $l^2 = 99\%$, $\tilde{t} = 0.4980$, $p < 0.01$	0.0996 [0.0579; 0.1663]		Residual heterogeneity: $J^2 = 95\%$, $p < 0.01$ 0.2 0.3 0.4 0.5 0.6	0.2374 [0.1001, 0.3242]
G	Dose1— ioint pain(subgroups	by age)	н	Dose1— headache(subgrou	ps by age)
U	Study Events Total Pr	oportion 95%-Cl	11	Study Events Total	Proportion 95%-Cl
	subgroup = 16 to 55 years old BNT162b2 519 4722 mRNA1272(Modema) 1893 11406 A2D1222 16 49 Fixed effect model 16177 Random effects model Heterogeneity: i ² = 90%, i ² = 0.2287, p < 0.01	0.1099 [0.1011; 0.1192] 0.1660 [0.1592; 0.1729] 0.3265 [0.1995; 0.4754] 0.1501 [0.1447; 0.1557] 0.1733 [0.1043; 0.2739]		aubgroup = 16 to 55 years old BN1162b = 2009	0.4199 [0.4058; 0.4342] 0.3533 [0.3445; 0.3622] 0.6531 [0.5036; 0.7833] 0.3737 [0.3663; 0.3812] 0.4549 [0.3267; 0.5892]
	subgroup = over 55 years old BNT/62b2 AZD/1222 12 79 Fixed effect model 7302 Random effects model 7302	0.0899 [0.0805; 0.0999] 0.1643 [0.1526; 0.1765] 0.1519 [0.0810; 0.2503] 0.1289 [0.1214; 0.1366] 0.1275 [0.0897; 0.1782]		subgroup = over 55 years old BNT162b ≥ 45 years old mRN41273(Moderna) 921 3762 AZD1222 35 79 Fixed affect model Random effects model Heterogenet; <i>r</i> = 96%, <i>r</i> = 0.1136, <i>ρ</i> < 0.01	0.2499 [0.2356; 0.2647] 0.2448 [0.2311; 0.2589] 0.4430 [0.3312; 0.5592] 0.2494 [0.2396; 0.2594] 0.2919 [0.2130; 0.3857]
	Fixed effect model 23479 Random effects model Hatoropenety: / 2 = 98%, ≠ = 0.1641, p < 0.01 Residual heterogenety: / 2 = 98%, p < 0.01 0.1 0.2 0.3 0.4	0.1435 [0.1391; 0.1480] 0.1479 [0.1085; 0.1985]		Fixed effect model 23479 Random effects model 1 Haterogeneity: P ² = 96%, p < 0.01 0.3 0.4 0.5 0.6 0.7	0.3350 [0.3290; 0.3411] 0.3755 [0.2781; 0.4842]

Figure S4. Forest plot of the incidence of ADRs after dose 1 (subgroups by age). Meta-analysis was performed using R statistical software. Event rates and their corresponding 95% confidence intervals were estimated using both a fixed-effects model and a random-effects model. (A) pain (B) swelling (C) fever (D) fatigue (E) chills (F) Muscle pain(myalgia) (G) Joint pain(arthralgia) (H) headache.

1 1					В						
	RNA based	vaccine	, dose1— pain(sub	groups by	age)	RNA based	l vaccine, do	ose1— swelling(si	ubgrou	ρs by age)	
	Study	Events To	tal	Proportion	95%-CI	Study	Events Total		Proportion	95%-CI	
	subgroup = 16 to 55 y	ears old		0 0000 10 044	0.0000	subgroup = 16 to	55 years old	<u></u>	0.0500	10 0522: 0 06711	
	mRNA1273(Moderna)	3919 47 9908 114	06	0.8299 [0.818	3; 0.8748]	mRNA1273(Moder	ma) 767 11406		0.0672	[0.0627; 0.0720]	
	Fixed effect model Random effects mode	161		0.8573 [0.851 0.8507 [0.821	8; 0.8626] 9; 0.8755]	Random effects n	nodel		0.0651	[0.0514; 0.0690] [0.0596; 0.0702]	
	Heterogeneity: $I^2 = 95\%$,	t = 0.0219, p <	0.01			Heterogeneity: $I^2 = 2$	24%, f = 0.0008, p = 0.0	9			
	subgroup = over 55 ye BNT162b2	ears old 2457 34	61	0 7099 10 694	5: 0 72501	subgroup = over 5 BNT162b2	55 years old 242 3461	<u>1</u>	0.0699	[0.0616; 0.0789]	
	mRNA1273(Moderna)	2782 37		0.7395 [0.725	2, 0.7535]	mRNA1273(Moder	ma) 165 3762		0.0439	[0.0375; 0.0509]	
	Random effects mode	el j	~ : :	0.7250 [0.704	1; 0.7451]	Random effects n	nodel		0.0555	[0.0401; 0.0765]	
	Heterogeneity: /* = 75%,	t = 0.0041, p <	0.01			Heterogeneity: 7 = 5	91%, 1 = 0.0000, p < 0.1	. <u>1</u>			
	Fixed effect model Random effects mode	233	51 <u>: </u>	0.8165 [0.811 0.7948 [0.723	5; 0.8214] 0; 0.8518]	Random effects n	nodel		0.0596	[0.0502; 0.0708]	
	Heterogeneity: / ² = 99%, Residual heterogeneity: /	f = 0.1608, p < 2 = 96%, p < 0.0	0.0			Heterogeneity: I* = 9 Residual heterogene	90%, f = 0.0311, p < 0.0 aity: J ² = 92%, p < 0.01	0.04 0.05 0.06 0.07			
C		· · · · · · · · · · · · · · · · · · ·			. D		lucacina de	and fatigue/aut		a hu ana)	
	RNA based v	accine,	dose1— fever(sub	ogroups by	age)	RNA based	i vaccine, uc	ose i — latigue(sui	group	s by age)	
	Study	Events Tot	al	Proportion	95%-CI	Study	Events Total		Proportion	95%-CI	
	subgroup = 16 to 55 ye	ars old		0.0400 10.034	8: 0.04601	subgroup = 16 to BNT162b2	55 years old 2219 4722	÷ +	0.4699	[0.4556; 0.4843]	
	mRNA1273(Moderna)	105 1140	ie + _	0.0092 [0.007	5; 0.0111]	mRNA1273(Moder Fixed effect mode	ma) 4384 11406	*	0.3844	[0.3754; 0.3934] [0.4018; 0.4170]	
	Random effects model	1012	° +	0.0193 [0.006	9; 0.0528]	Random effects m	nodel 28% 7=0.0301 p < 0.0		0.4263	[0.3682; 0.4865]	
	Heterogeneity: /* = 99%,	t = 0.5575, p <	0.01			subgroup = over §	55 years old	8			
	subgroup = over 55 ye BNT162b2	ars old 35 346	n - 	0.0101 [0.007	1; 0.0140]	BNT162b2	1177 3461		0.3401	[0.3243; 0.3561]	
	mRNA1273(Moderna) Fixed effect model	10 376 722		0.0027 [0.001]	3; 0.0049] 7; 0.0083]	Fixed effect mode	al 7223	<u>ه</u>	0.3361	[0.3253; 0.3471]	
	Random effects model Heterogeneity: 12 = 86%,	? = 0.4016, p <	0.01	0.0053 [0.002	1; 0.0135]	Random effects m Heterogeneity: I ² = 0	$1\%, \ 7 = 0, \ p = 0.50$		0.3361	[0.3253; 0.3471]	
	Fixed effect model	2335	1 1	0.0145 [0.013	1: 0.01611	Fixed effect mode	23351	\$	0.3868	[0.3805; 0.3930]	
	Random effects model	2=0.9142 p.c		0.0102 [0.003	; 0.0260]	Random effects m Heterogeneity: I ² = 9	nodel 98%, 7 = 0.0514, p < 0.0		0.3806	[0.3293; 0.4346]	
	Residual heterogeneity: 12	= 99%, p < 0.0	1 0.01 0.02 0.03 0.04			Residual heterogene	ity: I ² = 98%, p < 0.01	0.35 0.4 0.45			
Е	RNA based v	accine,	dose1— chills(sub	ogroups by	age) F	RNA based	vaccine, do	se1— muscle pair	n(subgi	oups by age	e)
	Study	Events Tot	al	Proportion	95%-CI	Study	Events Total	1	Proportion	95%-CI	
	subgroup = 16 to 55 ye	ears old	1.5			subgroup = 16 to 5	55 years old	: .			
	BNT162b2 mRNA1273(Moderna)	661 472 1051 1140	22	 0.1400 [0.130 0.0921 [0.086 	2; 0.1502] 9; 0.0976]	BNT162b2 mRNA1273(Modern	992 4722 na) 2699 11406	· · · · · ·	0.2101	0.1985; 0.2220]	
	Fixed effect model		28 🕹 📥	0 1062 10 101	5; 0.1110]				0.2366	0.2209, 0.2440	
	kandom effects mode	1612		- 0.1137 [0.084	7: 0.15101	Fixed effect model Random effects m	l 16128 odel		0.2366 [0.2289 [0.2239]	0.2224; 0.2354] 0.2060: 0.24291	
	Heterogeneity: $l^2 = 97\%$.	1612 7 = 0.0543, p <	0.01	0.1137 [0.084	7; 0.1510]	Fixed effect model Random effects m Heterogeneity: / ² = 85	l 16128 odel 5%, 7 = 0.0050, p < 0.0		0.2366 [0.2289 [0.2239 [0.2224; 0.2354] 0.2060; 0.2429]	
	Random effects mode Heterogeneity: J ² = 97%, subgroup = over 55 ye	161; 7 = 0.0543, p < ears old	0.01	0.1137 [0.084	7; 0.1510]	Fixed effect model Random effects m Heterogeneity: / ² = 85 subgroup = over 5:	l 16128 odel 5%, 7 = 0.0050, p < 0.0 5 years old	•	0.2366 [0.2289 [0.2239 [0.2226; 0.2354] 0.2224; 0.2354] 0.2060; 0.2429]	
	Random effects mode Heterogeneity: I ² = 97%, subgroup = over 55 ye BNT162b2 mRNA1273(Moderna)	161: ⁷ = 0.0543, p < ears old 208 346 202 370	0.01 31	0.1002 [0.101 0.1137 [0.084 0.0601 [0.052 0.0537 [0.046	7; 0.1510] 4; 0.0685] 7; 0.0614]	Fixed effect model Random effects m Heterogeneity: / ² = 89 subgroup = over 5 BNT162b2 mRNA1273(Modern	l 16128 odel 5%, ₹ = 0.0050, p < 0.0 5 years old 485 3461 - na) 742 3762	+ +	0.2366 [0.2289 [0.2239 [0.1401] 0.1972 [0.2224; 0.2354] 0.2060; 0.2429] 0.1287; 0.1521] D.1286; 0.2103]	
	Random effects mode Heterogeneilty: 1 ² = 97%, subgroup = over 55 ye BNT162b2 mRNA1273(Moderna) Fixed effect model Random effects mode	1612 1 2 = 0.0543. p < tars old 208 346 202 376 723	0.01 31 32 23 	0.0601 [0.052 0.0601 [0.052 0.0537 [0.046 0.0568 [0.051 0.0568 [0.051	7; 0.1510] 4; 0.0685] 7; 0.0614] 7; 0.0623] 7; 0.0623]	Fixed effect model Random effects m Heterogeneity: I ² = 80 subgroup = over 5 BNT162b2 mRNA1273(Modern Fixed effect model Random effects m	l 16128 odel 5%, 7 = 0.0050, p < 0.0 5 years old 485 3461 - 1a) 742 3762 l 7223 odel		0.2366 [0.2289 [0.2239 [0.1401 [0.1972] 0.1699 [0.1669 [0.2284; 0.2244; 0.2254] 0.2060; 0.2429] 0.1287; 0.1521] 0.1846; 0.2103] 9.1614; 0.1787] 1.1310; 0.2103]	
	Random effects mode Heterogeneity: I ² = 97%, subgroup = over 55 ye BNT162b2 mRNA1273(Moderna) Fixed effect model Random effects mode Heterogeneity: I ² = 0%, ?	$1612 \\ r^2 = 0.0543, p < 0.0544, p < 0.0$	0.01 31 == 22 == 23 🔷	0.0601 [0.052 0.0537 [0.084 0.0537 [0.046 0.0568 [0.051 0.0568 [0.051	4; 0.0685] 7; 0.0614] 7; 0.0623] 7; 0.0623]	Fixed effect model Random effects m Heterogeneity: <i>I</i> ² = 85 subgroup = over 5 BNT162b2 mRNA1273(Modern Fixed effect model Random effects m Heterogeneity: <i>I</i> ² = 95	1 16128 odel 5%, ? = 0.0050, p < 0.0 5 years old 485 3461 - 17223 odel 5%, ? = 0.0402, p < 0.0		0.2366 [0.2289 [0.2239 [0.2239] 0.1401 [0.1972] 0.1699 [0.1669 [0.2284, 0.2244, 0.2354] 0.2060; 0.2429] 0.1287; 0.1521] 0.1846; 0.2103] 0.1614; 0.1787] 0.1310; 0.2103]	
	Heterogeneity: 1 ² = 97%, subgroup = over 55 ye BNT162b2 mRNA1273(Moderna) Fixed effect model Random effects model Random effects model	1612 $r^2 = 0.0543, p < 0.0543, p < 0.0543, p < 0.0543, p < 0.024, 0.0$		- 0.1137 [0.084 0.0601 [0.052 0.0537 [0.046 0.0568 [0.051 0.0568 [0.051 0.0568 [0.051	7; 0.1510] 4; 0.0685] 7; 0.0614] 7; 0.0623] 7; 0.0623] 3; 0.0946] 4; 0.1172]	Fixed effect model Random effects m Heterogeneity: <i>i</i> ² = 80 subgroup = over 5 BNT162b2 mRNA1273(Modern Fixed effect model Random effects m Fixed effect model Random effects m	l 16128 odel 5%, ² = 0.0050, p < 0.0 5 years old 485 3461 - 742 3762 i 722 3 odel 5%, ² = 0.0402, p < 0.0 L 23351 odel		0.2366 [0.2289 [0.2239] 0.2239 [0.1401] 0.1699 [0.1669] 0.1669 [0.2106 [0.1937]	0.2266, 0.2449] 0.2224, 0.2354] 0.2060; 0.2429] 0.1287; 0.1521] 0.1846; 0.2103] 0.1614; 0.1787] 0.1310; 0.2103]).2054; 0.2159]).1600; 0.2325]	
	Kandom effects mode belarogeneity: J ² = 97%. subgroup = over 55 ye BNT162b2 mRNA1273(Moderna) Fixed effect model Random effects mode Heterogeneity: J ² = 0%. J ² Fixed effect model Reandom effects mode Heterogeneity: J ² = 9%.	1612 r = 0.0543, p < 208 344 202 374 202 374 20, p = 0.24 2334 r = 0, p = 0.24 2334 r = 98%, p < 0		- 0.1032 [0.1084 0.0601 [0.052 0.0537 [0.046 0.0568 [0.051 0.0568 [0.051 0.0568 [0.051 0.0909 [0.087	4; 0.0685] 7; 0.0614] 7; 0.0623] 7; 0.0623] 3; 0.0946] 4; 0.1172]	Fixed effects model Random effects m Heterogeneity: /² = 80 subgroup = over 5 BNT162b2 mRNA1273(Modern Fixed effects model Random effects m Heterogeneity: /² = 90 Fixed effects model Random effects m Heterogeneity: /² = 90 Brized effects model Random effects m	I 16128 odel 5%, ² = 0.0050, p < 0.0 5 years old 485 3461 - 1722 3761 0del 722 3761 0del 23351 0del 23351 0del 8%, ² = 0.0546, p < 0.0		0.2366 [0.2289 [0.2239] 0.2239 [0.1401] 0.1972 [0.1699] 0.1669] 0.2106 [0.1937]	0.2264, 0.2354] 0.2060; 0.2429] 0.1287; 0.1521] 0.1846; 0.2103] 0.1614; 0.1787] 0.1310; 0.2103] 0.2054; 0.2159] 0.1600; 0.2325]	
	Kandom effects mode Heterogeneity, 7° = 97%, subgroup = over 55 ye BNT162b2 mRNA1273(Moderna) Fixed effect model Random effects mode Heterogeneity, 7° = 9%, Fixed effect model Heterogeneity, 7° = 9%, Residual heterogeneity, 7°	1612 $r^2 = 0.0543, p < 208 344 202 374 202 374 722 1 2 = 0, p = 0.24 2333 1 2 = 0.1708, p < 2 2 = 98%, p < 0.0$		- 0.1137 [0.084 0.0601 [0.052 0.0537 [0.084 0.0568 [0.051 0.0568 [0.051 0.0568 [0.051	4; 0.0685] 7; 0.0614] 7; 0.0623] 7; 0.0623] 3; 0.0946] 4; 0.1172]	Fixed effects model Random effects m Heterogeneity: /² = 8/ subgroup = over 5 BNT162b2 mRNA1273(Modern Fixed effect model Random effects m Heterogeneity: /² = 9/ Fixed effect model Random effects m Heterogeneity: /² = 9/ Residual heterogeneity:	$\begin{array}{c} & 16128\\ \text{odel}\\ 5\%, \ \vec{r}=0.0050, \ p<0.0\\ 5\text{ years old}\\ 485 3461 -\\ 1722 3762\\ \text{odel}\\ 5\%, \ \vec{r}=0.0402, \ p<0.0\\ 23351\\ \text{odel}\\ 8\%, \ \vec{r}=0.0546, \ p<0.0\\ 10\text{ yr}, \ \vec{r}^2=96\%, \ p<0.01\\ \end{array}$		0.2366 [0.2289 [0.2239] 0.1401 [0.1972 [0.1699] 0.1669 [0.1669] 0.2106 [0.1937]	0.2244 (0.2354) 0.2224 (0.2354) 0.2060; 0.2429] 0.1287; 0.1521] 0.1846; 0.2103] 0.1614; 0.1787] 0.1310; 0.2103] 0.2054; 0.2159] 0.1600; 0.2325]	
G	kandom effects mode heterogeneity, 7° = 97%, subgroup = over 55 ye BNT162b2 mRNA1273(Moderna) Fixed effect model Random effects mode Heterogeneity; 7° = 9%, 7 Fixed effect model Random effects mode Heterogeneity; 7° = 9%, Residual heterogeneity; 7° RNA based via	1612 $r^2 = 0.0543, p < 208 344 202 374 722 r^2 = 0, p = 0.24 2334 r^2 = 0, p = 0.24 2334 r^2 = 0.1708, p < 0.00 accine,$	0.01 31 =	 0.1137 [0.084 0.0601 [0.052 0.0537 [0.084 0.0588 [0.051 0.0588 [0.051 0.0690 [0.087 0.0811 [0.055 (subgroups 	4; 0.0885] 7; 0.0614] 7; 0.0623] 3; 0.0946] 4; 0.1172] by age) H	Fixed effect model Random effects m Heterogenety; <i>i</i> ² = 20 subgroup = over 5 BNT162b2 mRNA1273(Moder Fixed effect model Random effects m Heterogenety; <i>i</i> ² = 9 Fixed effect model Random effects m Heterogenety; <i>i</i> ² = 9 Residual heterogenet	$\begin{array}{c} 16128\\ \text{odel}\\ \text{odel}\\ \text{Sw.}\ 7=0.0050,\ p<0.0\\ \text{S years old}\\ \text{abs}\\ \text{Teta}\\ \text{abs}\\ \text{Teta}\\ \text{Teta}\\ \text{Sw.}\ 7=0.0402,\ p<0.0\\ \text{Sw.}\ 7=0.0402,\ p<0.0\\ \text{Sw.}\ 7=0.0402,\ p<0.0\\ \text{Sw.}\ 7=0.0445,\ p>0.0\\ \text{Sw.}\ 7=0.045,\ p>0.045,\ p>0$	0.14 0.16 0.18 0.2 0.22 0.24 bse1-headache(s	0.2366 j 0.2239 [0.2239] 0.2239 [0.2239] 0.1401 [0.1972] 0.1699 [0.1699] 0.22106 [0.22106] 0.1937 [0.1287; 0.234[0.2287; 0.234] 0.2000; 0.429] 0.1287; 0.1521] 0.1464; 0.2103] 0.1614; 0.1787] 0.1310; 0.2103] 0.2054; 0.2159] 0.2054; 0.2159] 0.1600; 0.2325]	
G	Kandom effects mode Heterogenety 7: 9 97%, subgroup = over 55 ye BNT16202 mRNA1273(Moderna) Fixed effect model Random effects	1612 r = 0.0543, p < 208 344 202 374 208 244 208 344 208 200 208 200	001 31	 0.1137 [0.084 0.0601 [0.03237 [0.046 0.0537 [0.046 0.0556 [0.051 0.0566 [0.051 0.0690 [0.087 0.0811 [0.055 (subgroups Proportion 	7; 0.1510] 4; 0.0685] 7; 0.0614] 7; 0.0623] 7; 0.0623] 3; 0.0946] 4; 0.1172] by age) H 95%-Cl	Fixed effect model Random effects m Heterogeneity: 7 = 81 BNT162b2 mRNA1227(Moder Fixed effect model Random effects m Heterogeneity; 7 = 91 Residual heterogeneity Random effects m Heterogeneity; 7 = 91 Residual heterogeneit	(16128 odel 5%, c² = 0.0050, p < 0.0 5%, c² = 0.0050, p < 0.0 485 3.461 - 1722 3762 1723 3762 odel 23351 odel 23351 odel 23351 odel 23351 Odel 2351 Odel 2351 Odel 2351 Odel 23551 Codel 23551 Odel 235	0.14 0.16 0.18 0.2 0.22 0.24 bse1-headache(s	0.2366 [0.2239 [0.2239] 0.2239 [0.2239] 0.1609 [0.1669] 0.1669 [0.1937] 0.1937 [0.1937]	0.2224, 0.2334 0.2200; 0.2429 0.2600; 0.2429 0.1467, 0.1521 0.1464; 0.2103 0.1414; 0.2103 0.1310; 0.2103 0.1310; 0.2103 0.1600; 0.2325 0.1600; 0.2325 0.1600; 0.2325 0.1600; 0.2325	
G	Kandom effects mode Heterogenety 7: 9 27%. subgroup = over 55 ye BNT1622 mRNA1273(Moderna) Fixed effect model Random effects m	1612 i r = 0.0543, p < hars old 202 374 i = 0, p = 0.24 i r = 0, 1708, p < 0.0 acccine, Events To rears old	001 31	 0.1137 [0.084 0.0601 [0.052 0.0537 [0.046 0.0538 [0.051 0.0568 [0.051 0.06909 [0.087 0.0811 [0.055 (subgroups Proportion 	4: 0.0685) 7: 0.0614 7: 0.0614 7: 0.0623] 3: 0.0946] 4: 0.1172] by age) H 95%-Cl	Fixed effect model Random effects m Heterogeneity: /* = 81 BNT1622 mRNA1227(Moter Fixed effect model Random effects m Heterogeneity: /* = 91 Residual heterogeneity: /* = 91 Residual heteroge	(16128 odel (5 years old 455 3461 - 1723 3762 1723 376 1723 3762 1723 3762 1723 3762 1723 3762 1723 3762 1723 3762 1723 3762 1723 3762 1724 3762 1725 376 1725 3762 1725 376 1725 376	0.14 0.16 0.18 0.2 0.22 0.24 ose1— headache(0.2366 0.2239 [0.2239] 0.2239 [0.2239] 0.1401 [0.1972] 0.1699 [0.1669] 0.1937 [0.1937] SUDGTO Proportion	0.1224; 0.2334] 0.2206; 0.2429] 0.1287; 0.15211 0.1486; 0.21031 0.1414; 0.21031 0.1310; 0.2103] 0.2054; 0.2159] 0.1600; 0.2325] ups by age) 95%-c1	
G	Kandom effects mode methode and the second second second mRNA1223(Moderna) Fixed effect model Random effects model Random effec	1611 1 - 0.0543, p < 208 304 208 374 208 374	0.01 31 42 51 0.01	- 0.1137 [0.084 0.0601 [0.052 0.0537 [0.046 0.0568 [0.051 0.0568 [0.051 0.0508 [0.051 0.0609 [0.087 0.0811 [0.055 Proportion 0.1099 [0.10	4:0.0885] 7:0.0614] 7:0.0614] 7:0.0623] 3:0.0946] 4:0.1172] by age) H 95%-Cl 11:0.1192] 2:0.1229	Fixed effect model Random effects m Hearogenety: / = ver BNT (52b2 mRNA 1273 (Modern Fixed effect model Random effects m Hearogenety: / = ver Residual effect model Random effects m Hearogenety: / = ver Residual hearogenety: / = ver Random effects m Hearogenety: / = ver Random effects m Hearogenety	1 66128 dotel ⊂ 0.0050, p < 0.0 5 years old	0.14 0.16 0.18 0.2 0.22 0.24 ose1— headache(s	0.2366 [0.2239] 0.2239] 0.2239] 0.1401 [0.1972] 0.1699] 0.1699] 0.1937] 0.1937] SUDGTO Proportion 0.4199] 0.3533	0.1224; 0.2734] 0.1227; 0.2734] 0.2700; 0.2429] 0.1347; 0.1521] 0.1346; 0.2103] 0.1310; 0.2103] 0.2054; 0.2103] 0.2054; 0.2159] 0.1600; 0.2325] 0.1600; 0.2325] 0.95%-CI 0.0458; 0.0342] 0.3445; 0.3622]	
G	Kandom effects model mRNA1227(Moderna) Fixed effect model Random effects model Rando	1611 7 = 0.0543, p < 208 344, p < 208 344 202 374 202 374 203 374 203 374 203 374 203 374 203 374 203 374 203 374 203 374 203 374 204 374 205 204 205 204 20	0.01 31	Octavi [0.082 Octavi [0.082 Octavi [0.082 Octavi [0.087 Octavi [0.	(1:0.0885) 7:0.0614] 7:0.0614] 7:0.0623] 7:0.0623] 3:0.0946] 4:0.1172] by age) H 95%-Cl 11:0.1192] 2:0.1729] 11:0.1551] 11:0.1551]	Fixed effect model Random effects m Heterogenety: / a ver BNT (52):2 mRNA 1273 (Modern Fixed effect model Random effects m Heterogenety: / a ver Residual heterogenety: / a ver Residual heterogenety: / a ver Residual heterogenety: / a ver Residual heterogenety: / a ver Study Study Study Study Study Study Study Study effect model Random effects m Heterogenety: / a ver RNA 1273 (Modern Fixed effect model Random effects m	(6128 (6128)	0.14 0.16 0.18 0.2 0.22 0.24 ose1— headache(:	0.2366 [0.2239] 0.2239] 0.2239] 0.1401 [0.1972] 0.1609 [0.1937] 0.1937] 0.1937] 0.1937] 0.1937] 0.1937] 0.2106 [0.1937]	0.1224; 0.224; 0.224; 0.224; 0.224; 0.224; 0.224; 0.224; 0.224; 0.224; 0.224; 0.224; 0.224; 0.224; 0.224; 0.244; 0.244; 0.244; 0.244; 0.244; 0.245; 0	
G	Kandom effects mode Hearogeneity, 7° = 97%. subgroup = over 55 ye BNT16202 mRNA1273(Moderna) Fixed effect model Random effects model Hearogeneity, 7° = 99%, RNAA based vi Study subgroup = 18 to 55 y BNT162b2 mRNA1273(Moderna) Fixed effect model Hearogeneity, 7° = 99%, Study	1611 7 = 0.0543, p < vars old 208 344 202 374 208 344 202 374 1 = 0, p = 0.24 1 = 2334 2 = 0, 79 = 0.24 1 = 2334 2 = 0, 79 = 0.24 1 = 2334 2 = 0, 79 = 0.24 1 = 2334 2 = 0.1708, p < 2 = 0.9 = 0.24 1 = 2334 2 = 0.1708, p < 1 = 0.0557, p · 1 = 0.0557, p · 1 = 0.0557, p ·	0.01 31	0.1137 [0.084 0.0601 [0.052 0.0537 [0.084 0.0568 [0.051 0.0568 [0.051 0.0568 [0.051 0.0568 [0.051 0.0511 [0.055 Proportion 0.1099 [0.10 0.1496 [0.14 0.1496 [0.14 0.1496 [0.14]	7; 0.4510] 4; 0.0885] 7; 0.0614] 7; 0.0623] 3; 0.0946] 4; 0.1172] by age) H 95%-C1 11; 0.1192] 22; 0.1729] 11; 0.4551] 14; 0.1796]	Fixed effect model Random effects m Heterogeneity; ² = 48 subgroup; ² = 48 subgroup; ² = 48 mRM 222 (Modern Fixed effect model Random effects m Heterogeneity; ² = 91 Residuel heterogeneity; ² = 40 Residuel heterogeneity; ² = 50 RMA based Study subgroup = 16 to 1 BWT16222 mRNA 1270 Modern Fixed Random effects m Heterogeneity; ² = 9 RMA based Study	$\begin{array}{c} & (6128)\\ \text{odel} = 0.0050, p < 0.0\\ \text{Syears old} \\ & 455 & 3461 - 1\\ \text{aa}) & 742 & 3763\\ \text{odel} & 7223 & 1\\ \text{sys}, \ 7 = 0.0402, p < 0.0\\ \text{i} & 23351\\ \text{odel} \\ \text{sys}, \ 7 = 0.0402, p < 0.0\\ \text{i} & 23351\\ \text{odel} \\ \text{sys}, \ 7 = 0.0402, p < 0.0\\ \text{i} & 23351\\ \text{odel} \\ \text{sys}, \ 7 = 0.0402, p < 0.0\\ \text{i} & 3351\\ \text{i} & 3551\\ $	0.14 0.16 0.18 0.2 0.22 0.24 pse1— headache(:	0.2366 [0.2286] 0.2239 [0.2239] 0.1401 [0.1972] 0.1699 [0.1997] 0.1699 [0.1997] 0.1997 [0.1997] 0.1997 [0.1997] 0.1997 [0.199] 0.2166 [0.1937] 0.199] 0.5533 0.3726 [0.3857]	0.1224, 0.2334] 0.2260, 0.2429] 0.1287, 0.1521] 0.1287, 0.1521] 0.1287, 0.1521] 0.1444, 0.2103] 0.1414, 0.2103] 0.1410, 0.2103] 0.2054, 0.2159] 0.2054, 0.2159] 0.4600, 0.2325] 0.4600, 0.2325] 0.4600, 0.2325] 0.2454, 0.3622] 0.2454, 0.3622] 0.2454, 0.3622] 0.2454, 0.3622] 0.2454, 0.3622] 0.3454, 0.3623]	
G	Kandom effects mode Hearogeneity 7: 9 57%, subgroup = ever 55 ye BNT16202 mRNA1273(Moderna) Fixed effect model Random effects model Random effects model Random effects model Random effects model Random effects model Random effects model Study subgroup = 18 to 55 y BNT1622 mRNA1273(Moderna) BNT1622 mRNA1273(Moderna) Fixed effect model Random effects mode	1611 7 = 0.0543, p < vars old 208 344 202 377 721 1 = 0, p = 0.24 2333 1 = 0, p = 0.24 23334 1 = 0, p = 0	0.01 31	0.1137 [0.084 0.0601 [0.052 0.0537 [0.046 0.0568 [0.051 0.0568 [0.051 0.0568 [0.051 0.0568 [0.051 0.0811 [0.055 (subgroups Proportion 0.1099 [0.10 0.1099 [0.10 0.1358 [0.14 0.14 0.1358 [0.14 0.14	7: 0.1510] 4: 0.0885] 7: 0.0614] 7: 0.0623] 7: 0.0623] 3: 0.0946] 4: 0.1172] by age) H 95%-Cl 11: 0.1192] 22: 0.1729] 11: 0.1192] 4: 0.1796] 35: 0.0999]	Fixed effect model Random effects m Heterogeneity: 7 ² = 91 BNTT6222 mRNA1273/Modern Fixed effect model Random effects m Heterogeneity: 7 ² = 91 Residual heterogeneity: 7 ² = 91 Residual heterogeneity: 7 ² = 91 BNTT6222 mRNA1273/Modern BNTT6222 mRNA1273/Modern Fixed effect model Random effects m Heterogeneity: 7 ² = 91 BNTT6227 mRNA1273/Modern Fixed effect model Random effects m Heterogeneity: 7 ² = 91 BNT16227 mRNA1273/Modern	(16128 odel odel 485 3461- 485 3461- 485 3461- 485 3461- 7223 odel 485, f = 0.0402, p < 0.0 1 23351 odel 885, f = 0.0402, p < 0.0 1 23351 odel 885, f = 0.0402, p < 0.0 1 23351 0402 Events Total 55 years old 1983 4722 1930 1120 1983 4722 1930 1120 1985 4722 1930 1120 1985 4722 1930 1120 1985 4722 1930 1120 1930 1120 193	0.14 0.16 0.18 0.2 0.22 0.24 percent of the second	0.2366 [0.2239 [0.2239] 0.2239 [0.1401] 0.1927 [0.1937] 0.1937 [0.1937] 0.1937 [0.1937] 0.2106 [0.1937] 0.2106] 0.1937 [0.1937] 0.2459] 0.3533 0.3726] 0.3553 0.3726] 0.3557]	0.1224, 0.2334 0.2000; 0.2429] 0.1287; 0.1521] 0.1287; 0.1521] 0.1287; 0.1521] 0.1444; 0.2103] 0.1310; 0.2103] 0.2054; 0.2159] 0.2054; 0.2159] 0.2054; 0.2159] 0.2054; 0.2159] 0.2054; 0.2159] 0.2054; 0.2159] 0.2054; 0.2322] 0.2465; 0.2622] 0.2465; 0.2622] 0.2465; 0.26247]	
G	Kandom effects model subgroup = over 55 ye BNT162b2 mRNA1273(Moderna) Fixed effect model Random effects model Study subgroup = 18 to 55 y BNT162b2 mRNA1273(Moderna) subgroup = over 55 y BNT162b2 mRNA1273(Moderna)	1611 7 = 0.0543, p < 200 344 200 344 202 377 202 377	0.01 31		4: 0.0885] 7: 0.0614] 7: 0.0613] 7: 0.0623] 3: 0.0946] 4: 0.1172] by age) 95%-C1 11: 0.1192] 12: 0.1726] 14: 0.1796] 26: 0.09996] 26: 0.07651	Fixed effect model Random effects m Heterogeneity: 7 = 85 BNTT6222 mRNA1273(Moder Pixed effect model Random effects m Heterogeneity: 7 = 99 Residual heterogeneity: 7 = 99 Residual heterogeneity: 7 = 99 Rund an between Study Study Subgroup = 16 to 15 BNTT6222 mRNA1273(Modern Fixed effect model Random effects m Heterogeneity: 7 = 9 Subgroup = 0 = 16 to 15 BNTT622 mRNA1273(Modern	$\begin{array}{c} & (6128 \\ 0 \ del \ del \ del \\ 0 \ del \$	0.14 0.16 0.18 0.2 0.22 0.24 pse1— headache(s	0.2366 [0.2239 [0.2239] 0.2239 [0.1401] 0.1972] 0.1699 [0.1699] 0.1699 [0.1699] 0.1699 [0.1937] SUDGTO Proportion 0.4199 0.3533 0.3728] 0.3557]	0.2224, 0.2334 0.2200, 0.2429] 0.1287, 0.1521 0.1287, 0.1521 0.1287, 0.1521 0.1442, 0.2103 0.1514, 0.2103 0.1510, 0.2103 0.0544, 0.2159] 0.1600, 0.2325 0.1600, 0.2325 0.2554, 0.3222 0.3465, 0.3622 0.3465, 0.3623 0.3405, 0.3624 0.3405, 0.3424 0.3405, 0	
G	Kandom effects model subgroup = over 55 ye BNT16202 mRNA1273(Moderna) Fixed effect model Random effects model	1 1612 7 = 0.0543, p < 208 344 208 344 208 344 1 722 1 722 1 0, p = 0.24 2 11 2 0, p = 0.24 2 11 2 11 2 0, p = 0.24 2 11 2 11 2 0, p = 0.24 2 11 2 11 2 0, p = 0.24 2 11 2 11 2 0, p = 0.24 2 11 2 11 2 11	001 01 01 01 01 01 01 01 01 01		7: 0.1510] 4: 0.0885] 7: 0.0614] 7: 0.0613] 7: 0.0623] 3: 0.0946] 4: 0.1172] by age) H 95%-Cl 11: 0.1192] 22: 0.11726] 35: 0.0999] 35: 0.0999] 35: 0.0999] 35: 0.1785] 11: 0.1365] 11: 0.1365]	Fixed effect model Random effects m Heterogeneity: 7* = 8 BNTT6222 mRNA1223(Moderr Pixed effect model Random effects m Heterogeneity: 7* = 9 Residual heterogeneit Random effects m Heterogeneity: 7* = 9 Residual heterogeneit Study Subgroup = 16 to 1 BNTT6222 mRNA1223(Moderr Fixed effect model Random effects m Heterogeneity: 7* = 9 Subgroup = 0*05 S BNT16222 mRNA1223(Moderr Fixed effect mode Random effects m Heterogeneity: 7* = 9 Subgroup = 0*0*5 BNT16222	$\begin{array}{c} & (6128 \\ 0del \\$	0.14 0.16 0.18 0.2 0.22 0.24 0.14 0.16 0.18 0.2 0.22 0.24 0.24 0.14 0.16 0.18 0.2 0.24 0.24 0.24 0.24 0.24 0.24 0.24	0.2366 [0.2239 [0.2239] 0.2239 [0.1401] 0.1972] 0.1699 [0.1699] 0.1699 [0.1699] 0.1699 [0.1937] 0.1937 [0.1937] 0.2106 [0.1937] 0.2106] 0.3533 0.3728 [0.3557] 0.2499 0.24478 0.2473] 0.2499 0.24478 0.2473]	0.1223; 0.2334; 0.2334; 0.2600; 0.2429] 0.1287; 0.1521] 0.1487; 0.2103] 0.1614; 0.2103] 0.1614; 0.2103] 0.2054; 0.2103] 0.2054; 0.2159] 0.1600; 0.2325] 0.2654; 0.3222] 0.3465; 0.3622] 0.3465; 0.3624] 0.3465; 0.3624] 0.3465; 0.3624] 0.3465; 0.3624] 0.3475; 0.2473]	
G	Kandom effects model seturogeneity: /* 9 57%. subgroup = over 55 ye BNT16202 mRNA1273(Moderna) Fixed effect model Random effects model Random effects model Random effects model Random effects model Random effects model Study BNT16202 mRNA1273(Moderna) Fixed effect model Fixed effect model Random effects model Red effect model Random effects model Red effect model Random effects model Random eff	$ \begin{array}{c} 1 & 1611 \\ 7 & = 0.0543, \ \rho < \\ 200 & 344 \\ 200 & 377 \\ 721 \\ 1 & = 0, \ \rho = 0.24 \\ 203 & 100, \ \rho < 0.24 \\ 203 & 100$	001 31	- 0.1137 [0.084 0.0601 [0.052 0.0537 [0.064 0.0568 [0.051 0.0568 [0.051 0.0568 [0.051 0.0568 [0.051 0.0568 [0.051 0.0568 [0.051 0.0568 [0.051 0.0568 [0.051 0.0568 [0.051 0.1099 [0.10 0.1698 [0.10] 0.1698 [0.10] 0.1698 [0.10] 0.0898 [0.0898 [0.08] 0.0898 [0.1286 [0.122 0.1224 [0.124 [0.12]	4: 0.0685] 7: 0.0631] 7: 0.0631] 7: 0.0633] 3: 0.0946] 4: 0.1172] by age) 95%-CI 11: 0.1192] 20: 0.1729] 4: 0.1511] 4: 0.1511] 95: 0.09969] 95: 0.09969] 96: 0.1836]	Fixed effect model Random effects m Hearogenesity: P = ver BNT 162b2 mRN1273(Moderr Fixed effect model Random effects m Hearogenesity: P = ver Residual hearogenesity: P = ver BNT 162b2 mRN1273(Moderr Fixed effect model Random effects m Hearogenesity: P = ver BNT 162b2 mRN1273(Moderr Fixed effect mode Random effects m Hearogenesity: P = ver BNT 162b2 mRN1273(Moderr Fixed effect mode Random effects m Hearogenesity: P = ver Fixed effect mode Random effects m Hearogenesity: P = ver	$\begin{array}{c} & (6128 \\ 0del \\ 0del \\ 9\%, \ e^{2} = 0.0050, \ p < 0.0 \\ 465 \\ 3461 - 472 \\ 3762 \\ 3461 - 722 \\ 3762 \\ 0del \\ 23351 \\ 0del \\ 23351 \\ 0del \\ 8\%, \ e^{2} = 0.0402, \ p < 0.0 \\ 1 \\ 23351 \\ 0del \\ 8\%, \ e^{2} = 0.0402, \ p < 0.0 \\ 1 \\ 1 \\ 23351 \\ 0del \\ 8\%, \ e^{2} = 0.0402, \ p < 0.0 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ $	0.14 0.16 0.18 0.2 0.22 0.24 ose1— headache(s	0.2366 [0.2236] 0.2239 [0.2239] 0.1401 [0.1699] 0.1699 [0.1699] 0.1699 [0.1699] 0.1699 [0.1937] 0.1937 [0.1937] 0.2106 [0.1937] 0.2106 [0.1937] 0.2106 [0.1372] 0.2353 0.2373] 0.2499 0.2448 0.2473] 0.2499 0.2448 0.2473]	0.1224; 0.2334] 0.2200; 0.2429] 0.1287; 0.1521] 0.1487; 0.1521] 0.1464; 0.2103] 0.1510; 0.2103] 0.0544; 0.2103] 0.0544; 0.2159] 0.1600; 0.2325] 0.2054; 0.2159] 0.4600; 0.4342] 0.3454; 0.34342] 0.3454; 0.34342] 0.3454; 0.34342] 0.3454; 0.34342] 0.3454; 0.34342] 0.3454; 0.34342] 0.3454; 0.34342] 0.3454; 0.34543] 0.2345; 0.25473] 0.2345; 0.25733] 0.2375; 0.25733]	
G	Random effects model subgroup = over 55 ye BNT16202 mRNA1273(Moderna) Fixed effect model Random effects model Random effects model Random effects model Random effects model Random effects model Study Subgroup = 18 to 55 y BNT162b2 mRNA1273(Moderna) Fixed effect model Random effects model refresser mRNA1273(Moderna) Fixed effect model Random effects model Hearogeneity: <i>P</i> = 98%. Fixed effect model Random effects model Hearogeneity: <i>P</i> = 98%. Fixed effect model Random effects model Hearogeneity: <i>P</i> = 98%. Fixed effect model Random effects model Hearogeneity: <i>P</i> = 98%.	1 1612 $7^2 = 0.0543, p < 400$ 2003 344 2003 344 2003 347 2013 2014 2003 247 2014 2014 2015 241 2015 241	001 31	- 0.1137 [0.084 0.0601 [0.082 0.0537 [0.046 0.0568 [0.051 0.0568 [0.051 0.0568 [0.051 0.0568 [0.057 0.0811 [0.055 Proportion 0.1099 [0.10 0.1686 [0.15 0.1358 [0.10] 0.1358 [0.10] 0.1358 [0.10] 0.1358 [0.10] 0.1438 [0.13] 0.1246 [0.124 0.1431 [0.13] 0.1431 [0.13]	7: 0.4510] 4: 0.0685] 7: 0.0614] 7: 0.0623] 7: 0.0623] 3: 0.0946] 4: 0.1172] 95%-CI 95%-CI 11: 0.1192] 22: 0.1729] 4: 0.1795] 11: 0.1551] 4: 0.1785] 11: 0.1385] 11: 0.1385]	Fixed effect model Random effects m Heterogenetic; 7 = 98 BNT (62b) mRNA (237)(Modern Eixed effect model Random effects m Heterogenetic; 7 = 91 Residual heterogenetic Study Study Study Study = 16 to 1 BNT (62b) mRNA (237)(Modern Fixed effect model Study BNT (62b) mRNA (237)(Modern Fixed effect model Random effects m Heterogenetic; 7 = 91 Study BNT (62b) mRNA (237)(Modern Fixed effect model Random effects m Heterogenetic; 7 = 0 Study BNT (62b) mRNA (237)(Modern Fixed effect model Random effects m Heterogenetic; 7 = 0 Fixed effect model Random effects m	$\begin{array}{c} & (6128)\\ \text{odel} = 0.0050, p < 0.0\\ \text{Syears old}\\ \text{Syears old}\\ \text{sold} = 3722\\ \text{Syears old}\\ \text{sold} = 3722\\ sol$	0.14 0.16 0.18 0.2 0.22 0.24 0.581— headache(s	0.2366 [0.2239 [0.2239 [0.2239 [0.1401] 0.1972 [0.1699 [0.1699] 0.1699 [0.1699] 0.1699 [0.1937 [0.1937 [0.1937] 0.1937 [0.1937] 0.14199 [0.3533 0.3728] 0.3524] 0.3624 0.2448 0.2473 0.2473 0.2473 0.3472]	0.2294; 0.2394; 0.2294; 0.2394; 0.2000; 0.2429] 0.1297; 0.15211 0.1464; 0.2103; 0.1614; 0.2103; 0.1614; 0.2103] 0.2064; 0.2159] 0.4600; 0.2325] 0.4600; 0.2325] 0.4600; 0.2325] 0.3564; 0.3603; 0.3466; 0.4342] 0.2345; 0.2647] 0.2345; 0.2647] 0.2345; 0.2647] 0.2345; 0.2647] 0.2345; 0.2647] 0.2345; 0.2647] 0.2345; 0.2647] 0.2345; 0.2647] 0.2345; 0.2647]	

Figure S5. Forest plot of the incidence of ADRs of RNA-based vaccines after dose 1 (subgroups by age). Meta-analysis was performed using R statistical software. Event rates and their corresponding 95% confidence intervals were estimated using both a fixed-effects model and a random-effects model. (A) pain (B) swelling (C) fever (D) fatigue (E) chills (F) Muscle pain(myalgia) (G) Joint pain(arthralgia) (H) headache.



Study	Events Total	Proportion 95%-CI
subgroup = pro NVX-COV2373 Fixed effect mo Random effect Helerogeneity: no	oteln subunit odel 26 s model st applicable	0.0000 (0.0000; 0.1323) = 20000 = 200000 = 20000 = 20000 = 200000 = 20000
subgroup = RN BNT162b2 mRNA1273(Mo Fixed effect mo Random effect Heterogeneity: J ²	A based vaccine 56 8183 dema) 416 15168 adei 23351 5 model − 59%, ² − 0.4912, p < 0.01	0.0068 [0.0052; 0.0069] 0.0274 [0.0249; 0.0302] 0.0202 [0.0165; 0.0221] 0.0138 [0.0052; 0.0361]
subgroup = vir AZD1222 Fixed effect mo Random effect Helerogeneity no	al vector(non-replicating) odel 128 s model 128	0.0000 [0.0000; 0.0284]
Fixed effect mo Random effect Heterogeneity: /2	adel 23505 s model = 96%, 7 = 0.6512, p < 0.01	0.0201 [0.0184; 0.0220] 0.0095 [0.0030; 0.0296]

Dose1— fever≥ grade 3(subgroups by vaccine type) С

Study	Events	Total	Proportion	95%-CI
subgroup = prote NVX-COV2373 Fixed effect mode Random effects in Heterogeneity not a	in subunit d nodel pplicable	26	0.0000 [0.000); 0 1323]
subgroup = RNA BNT162b2 mRNA1273(Moder Fixed effect mode Random effects in Heterogeneity / ² = 9	based vaccine 38 na) 15 el nodel 12%, 7 = 0.5664	8183 15168 23351 p < 0.0	0.0046 [0.003 0.0010 [0.000 0.0023 [0.0017 0.0022 [0.0007	8; 0.0064) 8; 0.0016] 1; 0.0030] 1; 0.0063]
subgroup = viral v AZD1222 Fixed effect mode Random effects n Heterogeneity: not a	vector(non-re 1 nodel pplicable	128	0.0078 [0.000 0.0078 [0.001 0.0078 [0.001	; 0.0428 ; 0.0533] ; 0.0533]
Fixed effect mode Random effects in Heterogeneity: $I^2 = 8$ Residual heterogene	nodel 11%, 7 = 0.6410 11%, 7 = 96%, p	23505	0.0023 [0.0018 0.0024 [0.0009	; 0.0030] ; 0.0066]

 $_{\rm R}\,$ Dose1— swelling≥ grade 3(subgroups by vaccine type)

Study	Events Total	Proportion 95%-CI
subgroup = protein su NVX-COV2373 Fixed effect model	o 26	0.0000 [0.0000; 0.1323]
Random effects mode leterogeneity: not applic	able	
subgroup = RNA base BNT162b2 mRNA1273(Moderna) Fixed effect model Random effects mode Heterogeneity: / ² = 66%	ed vaccine 66 8183 5 23351 7 - 0.0265, p - 0.02	0.0081 [0.0062, 0.0103] 0.0054 [0.0043; 0.0067] 0.0063 [0.0054; 0.0074] 0.0065 [0.0049; 0.0086]
subgroup = viral vecto AZD1222 Fixed effect model Random effects mode Heterogeneity: not applic	or(non-replicating) 0 128 128 1 able	0.0000 [0.0000, 0.0284] 2000/002/2000/00-2000/00 2000/002/2000/02-2000/000/
Fixed effect model Random effects mode Heterogeneity: t ² = 39%, Residual heterogeneity: t	23505 $\vec{r} = 0.0263, p = 0.12$ $\vec{r} = 83\%, p = 0.02$ 0.020.040.06	0.0063 [0.0054; 0.0074] 0.0064 [0.0049; 0.0084] 0.08 0.1 0.12

Dose1— fatigue≥ grade 3(subgroups by vaccine type)

Study	Events 1	fotal		Proportion	95%-CI	
subgroup = pro NVX-COV2373 Fixed effect mo Random effects Heterogeneity: no	itein subunit Idel s model t applicable	26		0.0000	[0.0000; 0.1323]	_
subgroup = RN BNT162b2 mRNA1273(Mor Fixed effect mor Random effects Heterogeneity: / ²	A based vaccine 92 8 Idena) 151 15 Idel 23 a model = 0%, 7 = 0, p = 0.3	183 168 1361		0.0112 0.0100 0.0104 0.0104	[0.0091; 0.0138] [0.0084; 0.0117] [0.0092; 0.0118] [0.0092; 0.0118]	
subgroup = vira AZD1222 Fixed effect mo Random effects Heterogeneity no	al vector(non-repl del a model t applicable	icating) 128 128	_	0.0312 0.0313 0.0313	[0.0086; 0.0781] [0.0118; 0.0803] [0.0118; 0.0803]	
Fixed effect mo Random effects Heterogeneity: / ² Residual heteroge	del 2: a model = 0%, $\hat{\tau}$ = 0, p = 0.1: aneity: I^2 = 0%, p = 0	3505 3 36 0 0.020.	04 0.06 0.08 0.	0.0105 0.0105 1 0.12	[0.0093; 0.0119] [0.0093; 0.0119]	

Dose1— chills≥ grade 3(subgroups by vaccine type) Е



Study	Events Total	Proportion 95%-CI
subgroup = protein su NVX-COV2373 Fixed effect model Random effects model Heterogeneity not applic	abunit 0 26 26 able	0.0000 (0.0000; 0.1323)
subgroup = RNA base BNT162b2 mRNA1273(Modema) Fixed effect model Random effects model Heterogenetty: / ² = 93%,	47 8183 1 24 15108 23361 F = 0.3918, p < 0.0	0.0057 [0.0042; 0.0076] 0.0016 [0.0010; 0.0024] 0.0030 [0.0024; 0.0038] 0.0030 [0.0012; 0.0074]
subgroup = viral vecto AZD1222 Fixed effect model Random effects mode Heterogeneity not applic	or(non-replicatind) 3 128 128 abie	0.0234 [0.0049; 0.0670] 0.0234 [0.0076; 0.0701] 0.0234 [0.0076; 0.0701]
Fixed effect model Random effects model Heterogeneity: / ² = 91%, Residual heterogeneity: /	23505 2 = 0.7946, p < 0.01 2 = 96%, p < 0.01 0 0.02 0.04 0.06 0	0.0031 [0.0025; 0.0040] 0.0046 [0.0016; 0.0137]



 $_{
m G}$ Dose1— joint pain≥ grade 3(subgroups by vaccine type) $_{
m H}$ Dose1— headache≥ grade 3(subgroups by vaccine type)

Study Ever	nts Total P	roportion 95%-Cl	Study Events Total	Proportion 95%-CI
subgroup = protein subunit NVX-COV2373 Fixed effect model Random effects model Heterogeneity: not applicable	0 26		subgroup = protein subunit NVX-COV23/3 0 20 Phad effect model Random effects model Heterogenery, no applicative	0.0000 [0.0000; 0.1323] Satistic planning sinning Satistic planning sinning
subgroup = RNA based vace BNT162b2 mRNA1273(Moderna) Fixed effect model Random effects model Heterogeneity: /² - 47%, ?² - 0.0	cine 48 8183 61 15168 23361 0167, p - 0.0	0.0050 [0.0043; 0.0078] 0.0040 [0.0031; 0.0052] 0.0047 [0.0039; 0.0056] 0.0048 [0.0037; 0.0066]	subgroup = RNA based vaccine RNT162b = 00 8183 mRNA1273(Modorna) 271 15188 Random effects model Idenergonaly 27 e 00% 7 e 00535, p < 0.01	0.0110 [0.0089; 0.0135] 0.0179 [0.0158; 0.0201] 0.0155 [0.0140; 0.0171] 0.0142 [0.0101; 0.0199]
subgroup = viral vector(non AZD1222 Fixed effect model Random effects model Heterogeneity: not applicable	1-replicating) 1 128 128	0.0078 [0.0002; 0.0428] 0.0078 [0.0011; 0.0533] 0.0078 [0.0011; 0.0533]	subgroup = viral vector(non-replicating) AZD1222 2 128 Fixed effect model Random effects model Hoterogenery no dappicatie	0.0156 [0.0019; 0.0553] 0.0156 [0.0039; 0.0603] 0.0156 [0.0039; 0.0603]
Fixed effect model Random effects model Heterogeneity: $I^2 = 23\%$, $I^2 = 0.0$ Residual heterogeneity: $I^2 = 74\%$	23505 0165, p = 0.25 %, p = 0.05 0 0.02 0.04 0.06 0.08 0.1 0.12	0.0047 [0.0039; 0.0056] 0.0048 [0.0037; 0.0062]	Fixed effect model 23505 Random effects model	0.0154 [0.0139; 0.0171] 0.0141 [0.0102; 0.0194]

Figure S6. Forest plot of the incidence of ADRs over grade 3 after dose 1 (subgroups by vaccine type). Meta-analysis was performed using R statistical software. Event rates and their corresponding 95% confidence intervals were estimated using both a fixed-effects model and a random-effects model. (A) pain (B) swelling (C) fever (D) fatigue (E) chills (F) Muscle pain(myalgia) (G) Joint pain(arthralgia) (H) headache.

А	Dose2—	pain(su	bgroups b	y vaccir	ne type)	В	Dose2— swe	lling(subgroups by v	accine type)
	subgroup = inactivated vi	Events Iota		Piop	95%-CI		study Eve	nts Iotai		roportion 95%-CI
	BBIBP-CorV(SINOPHARM CoronaVac(sinovac) Fixed effect model Random effects model Heterogeneity: I ² = 96%, ² =	10 10 84 3742 6202 6286 1.4537, p < 0.01	-		0.1190 [0.0586; 0.2081] 0.6034 [0.5911; 0.6156] 0.5969 [0.5847; 0.6089] 0.3175 [0.0781; 0.7188]		BBIBP-CarV(SINOPHARM) CoronaVac(sinovac) Fixed effect model Random effects model Heterogeneity: I ² = 0%, I ² = 0, p = 0.	3 84 359 6202 6286	•	0.0357 [0.0074; 0.1008] 0.0579 [0.0522; 0.0640] 0.0576 [0.0521; 0.0636] 0.0576 [0.0521; 0.0636]
	subgroup = protein subur NVX-COV2373 Fixed effect model Random effects model Heterogeneity: not applicable	nit 15 26 20	W	- 177	0.5769 [0.3692; 0.7665] 0.5769 [0.3851; 0.7480] 0.5769 [0.3851; 0.7480]		subgroup = protein subunit NVX-COV2373 Fixed effect model Random effects model Heterogeneity: not applicable	1 26 26		0.0385 [0.0010; 0.1964] 0.0385 [0.0054; 0.2279] 0.0385 [0.0054; 0.2279]
	BNT162b2 mRNA1273(Moderna) Fixed effect model Random effects model Heterogeneity: / ² = 100%, ²	5967 8183 12943 14677 22860 = 0.2593, p < 0.01		-	0.7292 [0.7194; 0.7388] 0.8819 [0.8765; 0.8870] 0.8272 [0.8223; 0.8321] 0.8176 [0.6887; 0.9009]		Subgroup = RNA based vaccine BNT162b2 mRNA1273(Moderna) 1 Fixed effect model Random effects model Heterogeneity: I ² = 99%, ² = 0.1233,	525 8183 789 14677 22860 p < 0.01	•	0.0642 [0.0589; 0.0697] 0.1219 [0.1166; 0.1273] 0.1012 [0.0974; 0.1052] 0.0890 [0.0565; 0.1374]
	subgroup = viral vector(n Ad5 Sputnik V(Gam-COVID-Va AZD1222 Ad26 COV2.S Fixed effect model Random effects model Heterogeneity: I ² = 85%, ² =	on-replicating) 72 129 10) 8 20 39 128 1679 3356 3633 0.1419, p < 0.01	****	=	0.5581 [0.4681; 0.6455] 0.4000 [0.1912; 0.6395] 0.3047 [0.2265; 0.3922] 0.5003 [0.4832; 0.5174] 0.4949 [0.4787; 0.5112] 0.4475 [0.3455; 0.5540]		Ad5 Sputnik V(Gam-COVID-Vac) A2D1222 Ad28 COV2.S Fixed effect model Random effects model Heterogenetiy: J ² = 0%, ² = 0, p = 0.	licating) 5 129 1 20 2 128 186 3356 3633		0.0388 [0.0127; 0.0881] 0.0500 [0.0013; 0.2487] 0.0156 [0.0019; 0.0553] 0.0554 [0.0479; 0.0637] 0.0534 [0.0455; 0.0612] 0.0534 [0.0465; 0.0612]
	Fixed effect model Random effects model Heterogeneity: / ² = 100%, ² Residual heterogeneity: / ² = 5	32805 = 1.0976, p = 0 9%, p < 0.01	0.2 0.4 0.	.6 0.8	0.7461 [0.7413; 0.7508] 0.5267 [0.3554; 0.6919]		Fixed effect model Random effects model Heterogeneity: $l^2 = 97\%$, $l^2 = 0.1919$, Residual heterogeneity: $l^2 = 97\%$, $p <$	32805 p < 0.01 0.01	0.05 0.1 0.15 0.2	0.0875 [0.0845; 0.0906] 0.0557 [0.0384; 0.0803]
С	Dose2—	fever(su	bgroups b	oy vaccii	ne type)	D	Dose2— fat	igue(subgroups by v	accine type)
	Study	Events Tota	1	Prop	portion 95%-Cl		study Eve	nts Iotal	· · ·	roportion 95%-CI
	subgroup = inactivated v BBIBP-CorV(SINOPHARI CoronaVac(sinovac) Fixed effect model Random effects model Heterogenetly: /² = 91%, ?² =	irus (1) 3 84 9 6203 6281 2.2158, p < 0.01			0.0357 [0.0074; 0.1008] 0.0015 [0.0007; 0.0028] 0.0019 [0.0011; 0.0034] 0.0060 [0.0007; 0.0515]		BBIBP-CorV(SINOPHARM) CoronaVac(sinovac) Fixed effect model Random effects model Heterogeneity: I ² = 77%, ² = 1.7214,	1 84 989 6202 6286 p < 0.01	-	0.0119 [0.0003; 0.0646] 0.1595 [0.1504; 0.1688] 0.1575 [0.1487; 0.1687] 0.0533 [0.0072; 0.3041]
	subgroup = protein subu NVX-COV2373 Fixed effect model Random effects model Heterogeneity: not applicable	nit 0 24 21			0.0000 [0.0000; 0.1323] 0.0000 [0.0000; 1.0000] 0.0000 [0.0000; 1.0000]		subgroup = protein subunit NVX-COV2373 Fixed effect model Random effects model Heterogeneity: not applicable	12 26 26		0.4615 [0.2659; 0.6663] 0.4615 [0.2839; 0.6495] 0.4615 [0.2839; 0.6495]
	subgroup = RNA based v BNT162b2 mRNA1273(Moderna) Fixed effect model Random effects model Heterogeneity: <i>l</i> ² = 82%, <i>t</i> ² =	accine 1137 818: 2278 1467: 22860 0.0034, p < 0.01	3 C 7 C 10 10		0.1389 [0.1315; 0.1466] 0.1552 [0.1494; 0.1612] 0.1494 [0.1448; 0.1541] 0.1473 [0.1364; 0.1590]		subgroup = RNA based vaccine BNT162b2 44 mRNA1273(Moderna) 9 Fixed effect model Random effects model Heterogeneity: I ² = 99%, ² = 0.0408,	551 8183 582 14677 22860 p < 0.01	۵- ۳ ۱	0.5562 [0.5453; 0.5670] 0.6529 [0.6451; 0.6606] 0.6182 [0.6119; 0.6245] 0.6057 [0.5369; 0.6705]
	subgroup = viral vector(r Ad5 Sputnik V(Gam-COVID-V AZD1222 Ad26.COV2.S Fixed effect model Random effects model	on-replicating) 21 121 ac) 20 21 0 121 320 3354 363			0.1628 [0.1037; 0.2380] 1.0000 [0.8316; 1.0000] 0.0000 [0.0000; 0.0284] 0.0954 [0.0856; 0.1058] 0.0994 [0.0901; 0.1095] 0.1796 [0.0007; 0.9846]		subgroup = viral vector(non-rep Ad5 Sputnik V(Gam-COVID-Vac) A2201222 Ad26.COV2.S 1: Fixed effect model Random effects model Heterogeneity: / ² = 0%, f ² = 0, p = 0.	licating) 44 129 11 20 55 128 315 3356 3633 24	**************************************	0.3411 [0.2599; 0.4297] 0.5500 [0.3153; 0.7694] 0.4297 [0.3426; 0.5201] 0.3918 [0.3753; 0.4086] 0.3922 [0.3765; 0.4082] 0.3922 [0.3765; 0.4082]
	Fixed effect model Random effects model Heterogeneity: / ² = 100%, ²	= 29.3786, p = 0.10 3280 = 11.7376, p < 0.01	È.		0.1155 [0.1121; 0.1190] 0.0513 [0.0050; 0.3673]		Fixed effect model Random effects model	32805	, , , , , , , , , , , , , , , , , , , 	0.5048 [0.4994; 0.5102] 0.3455 [0.1909; 0.5415]
	Residual heterogeneity: /* =)	38%, p < 0.01	0 0.2 0.4 0.6	3 0.8 1			Residual heterogeneity: 1 ² = 98%, p <	0.01	0.1 0.2 0.3 0.4 0.5 0.6 0.7	
-	Residual heterogeneity: /2 = :	38%, p < 0.01	0 0.2 0.4 0.6	3 0.8 1	no (1/100)	Б	Residual heterogeneity: $l^2 = 98\%$, $p < 000\%$	0.01	0.1 0.2 0.3 0.4 0.5 0.6 0.7	vaccino tuno)
Е	Dose2—	^{38%, p < 0.01} chills(su	0 0.2 0.4 0.6 ubgroups k	^{5 0.8} 1	ne type)	F	Residual heterogeneity: I ² = 98%. p < Dose2- muscl Study Eve	0.01 e pail nts Total	0.1 0.2 0.3 0.4 0.5 0.6 0.7 n(subgroups by	vaccine type) Proportion 95%-Cl
E	Residual heterogeneity: /* =i Dose2— Study subgroup = inactivated vi BBIBP-CarV(SINOPHARM CoronaVac(sinovac) Fixed effect model Random effects model Interogeneru(-* = 44%, e*)	BB%, p < 0.01 Chills(su Events Total 100 6202 6286 1.0137, p = 1.00	0 0.2 0.4 0.6 ubgroups k	3 0.8 1 by vacci Proporti 0.04 0.04 0.04	ne type) ion 95%-Cl 000 [0.0000: 0.0430] 00445: 0.0548] 01 [0.0048: 0.0548] 01 [0.0048: 0.2528]	F	Residual heterogeneity: F = 35%, p = Dose2— muscl Study Eve subgroup = inactivated virus BBIPP-Cort/SINOPHARM, Corona/ac(sinoac) Fixed effect model Random effects model	0.01 e pail nts Total 0 84 727 6202 6286 <i>p</i> = 1.00	0.1 0.2 0.3 0.4 0.5 0.6 0.7 n(subgroups by	vaccine type) roportion \$5%-CI 0.0000 [0.0000; 0.0430] 0.1172 [0.1680; 0.1236] 0.1157 [0.1680; 0.1236] 0.0152 [0.0002; 0.5744]
Е	Residual heterogeneity: /* = i Dose2	88%, p < 0.01 Chills(Su Events Total TUS) 0 844 309 6202 6286 1.8137, p = 1.00 it 0 26 26	0 0.2 0.4 0.6	0.08 1 0.00 Vacci Proporti 0.00 0.04	ne type) on 95%-Cl 000 [0.0006; 0.0430] 9 [0.0446; 0.0350] 9 [0.0446; 0.0350] 9 [0.0446; 0.2528] 000 [0.0000; 0.1323]	F	Realizability in Constraints of the constraints of	0.01 e pair nts Total 0 844 727 6202 6286 p = 1.00 12 26 26	0.1 0.2 0.3 0.4 0.5 0.6 0.7 n(subgroups by	Vaccine type) http://www.accine.com/acci
E	Residual heterogeneity: * * * Dosce2	B8%, p < 0.01	0 0.2 0.4 0.6	0.08 1 Proports 0.00 0.01 0.00 0.00 0.00 0.00 0.00 0.0	ne type) on 95%-CI 00 0000: 0.0430 01 0.0440: 0.0556 02 0.0440: 0.0556 03 0.0440: 0.0556 04 0.0450: 0.0556 05 0.0440: 0.0556 06 0.0450: 0.0556 07 0.0356: 0.0457 07 0.3256: 0.0471 07 0.3256: 0.0471	F	Realizabiliterrogenetity, 7 = 95%, e7 Realizabiliterrogenetity, 7 = 95%, e7 Study Eve subgroups = inactivated virus BBIPP-Cev(StoPPHARM) Coron3vac(sinoxe) Fixed effect model Random effects model Random effects model heterogenetity, not applicable subgroup = RNA based vanching BWT162b2 2 R BWT162b2 R	0.01 e pair nts Total 0 840 727 6202 6286 ρ = 1.00 12 26 751 8183 508 14677 22860	o.1 0.2 0.3 0.4 0.5 0.6 0.7	Vaccine type) Proportion 95%-C1 0.0000 0.0000 0.0430 0.1152 0.0168 0.152 0.0152 0.0002 0.5744 0.415 0.2589 0.6863 0.4415 0.2392 0.4465 0.4615 0.2392 0.4465 0.4615 0.2392 0.4465 0.4615 0.2392 0.4465 0.4615 0.2392 0.4465 0.4615 0.2392 0.4465 0.4615 0.2392 0.4465 0.4615 0.2392 0.4465 0.4615 0.2392 0.4465 0.4615 0.2392 0.4465 0.4615 0.2392 0.4465 0.4615 0.2392 0.4465 0.4615 0.2392 0.4465 0.4615 0.2392 0.4465 0.4392 0.4465 0.24945 0.4393 0.4495 0.24945
E	Residual heterogeneity: /* = I Dosce2 Study aubgroup = inactivated vi BilleP-cov(StorPHARM CoronaVac(sinovac) Fixed affect model Random affects model NVX-COV/273 Fixed affect model NVX-COV/273 Fixed affect model Netandom affects model Heterogeney, rok ableadur BNT16202 BNT16202 BNT16202 BNT4620- Studgroup = PrAN based vi BNT16202 BNT4620- Studgroup = PrAN based vi BNT16202 BNT4620- Studgroup = Viral vector(In AdS Syuthk V(Gam-COVID-Via Ad25 COV/2 Fixed affect model Fixed affect model	BNN, p < 0.01 Chills (St Events Total 10) 0 84(4) 10) 0 84(4) 10	0 0.2 0.4 0.6	0.08 1 Proporti 0.04	ne type) on 95/-CI 000 0.0001 0.0430 000 0.0002 0.0430 000 0.0002 0.0430 000 0.0002 0.1323 000 0.0002 0.1323 000 0.0002 0.1323 001 0.0444 0.04971 007 0.0444 0.04971 007 0.0444 0.04971 007 0.0444 0.04771 000 0.0002 0.2282 000 0.0002 0.2282 000 0.0002 0.2282 000 0.0002 0.2282 000 0.0002 0.0282 00 0.0003 0.02074 010 0.0013 0.0111 010 0.0013 0.0011 010 0.0026 0.0282 010 0.0026 0.0281 010 0.0174 0.01249	F	Reading interrogeneity, 7 = 95%, -9 Readical interrogeneity, 7 = 95%, -9 Readical interrogeneity, 7 = 95%, -9 Study Eve subgroup = inactivated virus BBIRP-Cov(ShOPHARM) CoronaVac(shorace) Fixed effect model Random effects model Networper 200 Fixed effect model Networper 200 Fixed effect model Networper 200 Fixed effect model Networper 200 Random effects model Networper 200 Read effect model Networper 200 Read effect model Networper 200 Read effect model Networper 200 Read effect model Readow effects model Networper 200 Read effect model Readow effects model Networper 200 Read effect model Readow effects model Readow effec	$p_{0.01}^{0}$ e paii nts Total 0 84 727 6202 6286 p = 1.00 12 26 26 26 26 26 26 26 26 26 26	n(subgroups by	Vaccine type) Proportion 95%-C1 0.0000 0.0000 0.0430 0.1172 0.1685 0.152 0.1192 0.1695 0.152 0.1192 0.1695 0.2659 0.4615 0.2659 0.6663 0.4615 0.2359 0.4685 0.4615 0.2359 0.4685 0.4615 0.2359 0.4685 0.4615 0.2359 0.4685 0.4625 0.2485 0.4695 0.4635 0.2485 0.2485 0.4655 0.2485 0.2485 0.4655 0.2485 0.2485 0.4655 0.2485 0.2485 0.4655 0.2486 0.4890 0.4553 0.2485 0.2584 0.2576 0.1485 0.3287 0.3576 0.3486 0.3493
E	Residual heterogeneity: * * * * Dosce2	$\begin{array}{l} \text{BWN}, p < 0.01 \\ \text{ chills (st.} \\ \text{Events Total} \\ \text{Total Total} \\ \text{Solution} \\ Solut$	0 0.2 0.4 0.6 Ibgroups k	0.08 1 Proporti 0.00 0.04 0.00	ne type) or 95,-C1 (0.000: 0.0430 (0.000: 0.0430 (0.000: 0.0430 (0.000: 0.0430 (0.000: 0.0430 (0.000: 0.0430 (0.000: 0.0430 (0.000: 0.0430 (0.000: 0.0437 (0.2750: 0.4713) (0.000: 0.0281 (0.000: 0.2813 (0.000: 0.2813 (0.000: 0.2814 (0.000:	F	Rearrogenety: /* = 105.0.* Reactaul heterogenety: /* = 956.0.* Study Eve subgroup = inactivated virus BBIPP-Cov(ShOPHARM) CoronaVac(shorae) Fixed effect model Random effects model Random effects model Netwo-Cov(237) Fixed effect model Random effects model Netwo-Cov(237) Fixed effect model BHT162b2 BH	0.01 epsile 0 64 0 64 0 6202 6202 6202 6202 6202 6202 6202 6202 6202 6202 6202 6202 6202 6202 6202 6203 122 26 14077 23 122 23 122 3033 3833 $\rho < 0.01$ 32805 3020 3.92 $\rho < 0.01$ 32805 $\rho < 0.01$ 32805	0.1 0.2 0.3 0.4 0.5 0.6 0.7	vaccine type) Proportion 9%-C1 0.00000 (0.0000; 0.0330) 0.1172 (0.1080; 0.1251) 0.1172 (0.1080; 0.1251) 0.1152 (0.0002; 0.574) 0.4115 (0.2659; 0.6668) 0.4415 (0.2339; 0.4485) 0.4415 (0.2339; 0.4485) 0.4415 (0.2339; 0.4485) 0.4415 (0.2339; 0.4485) 0.4415 (0.2339; 0.4485) 0.4525 (0.4486; 0.4490) 0.4455 (0.2484; 0.4280) 0.4530 (0.1485; 0.42840) 0.2495; 0.42840; 0.4390) 0.4530 (0.1485; 0.42841) 0.24945; 0.42820; 0.3470 (0.1485; 0.42841) 0.3472; 0.3477 (0.1486; 0.3472) 0.3425; 0.3272; 0.4076] 0.3425 (0.3872; 0.4076] 0.3425; 0.3872; 0.4076]
E	Residual heterogeneity: * * * * Dosce2	$\begin{aligned} & \text{BWL}, p < 0.01 \\ & \text{Chills}(St \\ & \text{Events Total} \\ & \text{Events Total} \\ & \text{Solution} \\ & Solution$	0 0.2 0.4 0.6 Ibgroups b 0 0.1 0.2 0.3 subgroups	0.25 0.00 0.04 0.00 0.04 0.05 0.05 0.05 0.0	ne type) n 9%-C1 00 [0.000: 0.0430] 199 [0.0444: 0.0556] 101 [0.000: 0.1323] 101 [0.000: 0.1323] 101 [0.1336: 0.1437] 101 [0.1346: 0.3073] 101 [0.1346: 0.3073] 101 [0.1346: 0.3073] 101 [0.1346: 0.3170] 101 [0.1346: 0.3170] 101 [0.1346: 0.3170] 101 [0.0300: 0.0282] 101 [0.0300: 0.0282] 101 [0.0300: 0.0383] 101 [0.0300: 0.0383] 101 [0.0300: 0.0383] 101 [0.0300: 0.0453] 101 [0.0300: 0.0453] 101 [0.0300: 0.0453] 101 [0.0300: 0.1417] 102 [0.0007: 0.1417] 103 [0.0007: 0.1417]	F	Restriggeneity, T = 05%, col. 14.22 Residual heterogeneity, T = 05%, col. 14.22 Study Even subgroup = inactivated virus BelleP-Cov(StNOPHARM) CoronaVac(sinoac) Fixed effect model Random effects model NV-COV273 Fixed effect model Andom effects model Heterogenety, T = 45%, cf = 5.754.8, subgroup = protein subunit NV-COV273 Fixed effect model Heterogenety, T = 105%, cf = 0.204 Studyroup = PRA based vaccine BNT (62/2 Random effects model Heterogenety, T = 105%, cf = 0.204 ZD1222 A220 C2V2.5 1 Fixed effect model Random effects model Heterogenety, T = 105%, cf = 0.0404 Fixed effect model Random effects model R	0.01 e pail nts Total 0 444 p = 1.00 12 26 2280 2280 2280 2280 2280 2280 2280 2280 2280 23 320 23 320 20 320 23 320 20 320 23 320 20 320	0.1020304050607 n(subgroups by	vaccine type) Propertian 9%-C1 0.0000 (0.0003; 0.0430) 0.1172 [0.1083; 0.1255] 0.1172 [0.1083; 0.1253] 0.1157 [0.1083; 0.1254] 0.4175 [0.1083; 0.1254] 0.4151 [0.2234; 0.4481] 0.4161 [0.2234; 0.4481] 0.4161 [0.2234; 0.4481] 0.4161 [0.2234; 0.4481] 0.4362 [0.329; 0.3484] 0.5767 [0.5774; 0.5877] 0.4252 [0.4864; 0.4490] 0.5352 [0.2344; 0.4681] 0.4365 [0.4864] 0.4353 [0.2484; 0.4480] 0.4265 [0.4864] 0.5767 [0.5774; 0.5844] 0.4265 [0.4864] 0.5768 [0.5774] 0.4465 [0.4864] 0.4359 [0.2484; 0.4264] 0.4265 [0.4864] 0.5769 [0.5774] 0.5854 [0.5864] 0.5769 [0.5774] 0.4465 [0.3472] 0.5769 [0.5774] 0.4465 [0.3472] 0.5779 [0.5784] 0.4465 [0.3472] 0.4025 [0.3972; 0.4076] 0.3408 0.4025 [0.3972; 0.4178] 0.4085 0.4025 [0.3972; 0.4178] 0.4085
E	Residual heterogeneity: * * * Dosce2	$\begin{aligned} & \text{BWN}, p < 0.01 \\ & Chills(SclEvents Total $	0 0.2 0.4 0.6 Ibgroups b 0 0.1 0.2 0.3 subgroups	0.25 0.00 0.00 0.00 0.00 0.00 0.00 0.00	ne type, on 9%-c1 000 0.0430 990 0.0448 0.0558 001 0.0000 0.0430 990 0.0448 0.0558 001 0.0000 0.1323 001 0.0000 0.1323 001 0.02000 0.0382 001 0.02000 0.0382 001 0.02000 0.0382 001 0.02000 0.0382 001 0.02000 0.0382 001 0.02000 0.0382 001 0.02000 0.0382 001 0.02000 0.0382 001 0.02000 0.0382 001 0.02000 0.0382 001 0.02000 0.0382 001 0.02000 0.0382 002 0.02000 0.03113 003 0.04072 0.4497 003 0.04072 0.4497 003 0.04072 0.4497	F =	Realizadi heterogenetic, " # 95%, e 1 Adva Realizadi heterogenetic, " # 95%, e 1 Adva Subgroup = inactivated virus BilleP-Cov(SINOPHARM) CoronaVac(sinovac) Fixed effect model Random effects model NVV-COV/237 Fixed effect model Andom effects model Heterogenety: r = 45%, e 5 + 5748, Subgroup = protein subunit NVV-COV/237 Fixed effect model Heterogenety: r = 45%, e 5 + 5748, Subgroup = protein subunit RNV-COV/237 Fixed effect model Heterogenety: r = 40%, e 5 + 5748, Subgroup = protein subunit NVV-COV/237 Fixed effect model Advancements, r = 40%, e 5 + 5748, Subgroup = protein subunit NVC-COV/237 Fixed effect model Random effects model Heterogenety: r = 40%, e 5 + 10%, e 7 Dosc2_ heterode Random effects model Random effects model Ran	001 e pail nts Total 0 444 p = 100 12 26 2280 p = 100 12 26 2800 144 3053 p ≠ 0.01 32805 p = 0	0. 10.2 0.3 0.4 0.5 0.6 0.7 n(subgroups by	vaccine type) Propertian 9%-C1 0.0000 (0.0003; 0.0430) 0.1172 [0.0003; 0.0430] 0.1172 [0.1083; 0.1255] 0.1157 [0.1083; 0.1254] 0.1172 [0.1083; 0.1254] 0.4151 [0.2234; 0.4451] 0.4151 [0.2234; 0.4451] 0.4152 [0.0002; 0.5744] 0.4152 [0.0002; 0.5744] 0.4151 [0.2234; 0.4451] 0.5767 [0.5746; 0.5457] 0.4252 [0.3254; 0.4602] 0.5769 [0.5746; 0.5457] 0.425 [0.4862; 0.4904] 0.5250 [0.0862; 0.4916] 0.2550 [0.0862; 0.4501] 0.5250 [0.0862; 0.4916] 0.2578 [0.1846; 0.3429] 0.4025 [0.3772; 0.4076] 0.3420 [0.2244; 0.3429] 0.4025 [0.3772; 0.4076] 0.3420 [0.2244; 0.3429] 0.4025 [0.3772; 0.4076] 0.3420 [0.2244; 0.3429] 0.4025 [0.3772; 0.4076] 0.4455 [0.3772] 0.4025 [0.3772; 0.4076] 0.4455 [0.3772] 0.4025 [0.3772; 0.4076] 0.4456 0.4025 [0.3772; 0.4076] 0.4456 0.4025 [0.3772; 0.4076] 0.4456 0.4025 [0.3772; 0.4076] 0.4456 0.4025 [0.3772; 0.4076] 0.4456
E	Residual heterogeneity: / * = I Dosce2— Study Subgroup = Inactivated vi BiBP-Cor(NDPHARM Coronalyse(sinovec) Fixed effect model and Internogeneity: / * = (44%, 7 = Subgroup = proteins subm. NVX-COV237 Fixed effect model and Internogeneity: / a (44%, 7 = Subgroup = proteins subm. BiXT (523) Fixed effect model Random effects model Networks, (46%m-COVID-Va AzD(122) AzD(122) AzD(122) AzD(122) AzD(122) Fixed effect model Random effects model Heterogeneity: / * = (05%, 7 = Fixed effect model Random effects model Heterogeneity: / * = (05%, 7 = Fixed effect model Random effects model Heterogeneity: / * = (05%, 7 = Fixed effect model BiBP-Cor(V(SINOPHARM Coronalyd(s(inovac) Random effects model Random effects model Random effects model Heterogeneity: / * = (05%, 7 = Fixed effect model Random effects model Random eff	$\begin{aligned} & \text{BWN}, p < 0.01 \\ & \text{Chills}(SL \\ & \text{Events Total} \\ & \text{Total VI} \\ & 0 & 0 & 0 \\ & 0 & 0 & 0 \\ & 0 & 0 &$	0 0.2 0.4 0.6 Ibgroups k	0.08 1 Proporti 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04	ne type) om 9%-c1 om 9%-c1 om 9%-c1 om 9%-c1 om 0%-c1 om 0%-c1 om 0%-c1 om 0%-c1 om 0.0445 om 0.0000 om 0.00000	F H	Realizadi heterogenetic, "F = 95%, e 7 Backadi heterogenetic, "F = 95%, e 7 Study ElleP - Cev(StoOPHARM) ElleP - Cev(StoOPHARM) ElleP - Cev(StoOPHARM) ElleP - Cev(StoOPHARM) ElleP - Cev(StoOPHARM) ElleP - Cev(StoOPHARM) ElleP - Cev(StoOPHARM) CoronaVac(stonoce) Fixed effect model Heterogenetic, not applicate subgroup = RNA based vacation EVICED - 2 Stad effect model Heterogenetic, not applicate subgroup = NNA based vacation EVICED - 2 Stad effect model Heterogenetic, not applicate Stad effect model Bategorenetic, not applicate Stad Stad Stad Stad Bategorenetic, not applicate Stad Stad Stad Stad Ellep - Cev(Stad Stad Stad ElleP - Cev(Stad Stad Stad ElleP - Cev(Stad Stad Stad Stad Stad ElleP - Cev(Stad Stad Stad Stad Stad Stad ElleP - Cev(Stad Stad Stad Stad Stad Stad Stad Stad	$\begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ & &$	0. 10 2 0 3 0 4 0 5 0 6 0 7 n(subgroups by	vaccine type) Propertian 9%-C1 0.0000 (0.0000; 0.0430) 0.1172 (0.1080; 0.1256) 0.1172 (0.1080; 0.1256) 0.1157 (0.1080; 0.1266) 0.1172 (0.1080; 0.1266) 0.3161 (0.2358) 0.4151 (0.2358) 0.4351 (0.2358) 0.4152 (0.0002; 0.5774) 0.4455 (0.2359; 0.4461) 0.5767 (0.577; 0.4652) 0.4455 (0.2359; 0.4646) 0.4553 (0.2454; 0.4260) 0.4553 (0.2454; 0.4260) 0.4553 (0.2454; 0.4260) 0.4553 (0.2454; 0.4260) 0.4553 (0.2454; 0.4260) 0.4553 (0.2454; 0.4260) 0.4553 (0.2454; 0.4260) 0.4553 (0.2454; 0.4260) 0.4553 (0.2454; 0.4260) 0.4553 (0.2454; 0.3260) 0.4553 (0.2454; 0.3272) 0.4461 0.2567 (0.138; 0.4062) 0.3262 0.4255 (0.2477; 0.4476; 0.3426) 0.3267 0.4255 (0.3477; 0.3464; 0.3426) 0.3476 0.4025 (0.3477; 0.3461; 0.3437; 0.3461; 0.3437; 0.3456; 0.3477 0.3476 (0.3473; 0.3456; 0.3577
E	Residual heterogeneity: /* = Dose2	$\begin{aligned} & \text{BWN, } \rho < 0.01 \\ & \text{ chills (st. } \\ & \text{Events Total} \\ & \text{Second States} \\ & \text{Events Total} \\ & \text{Events Total } \\ & E$	0 0.2 0.4 0.6 Ibgroups k 0 0.1 0.2 0.3 subgroups	0.08 1 Proporti 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.00 0.04 0.05 0.04 0.05	ne type) on 95/-C1 on 95/-C1 on 95/-C1 on [0.000: 0.0430] 98 [0.0441: 0.0556] 99 [0.0442: 0.0556] 90 [0.200: 0.1323] 91 [0.2844: 0.3070] 97 [0.2757: 0.4713] 000 [0.0000: 0.0282] 000 [0.0000: 0.2274] 1000 [0.0000: 0.2274] 1000 [0.0000: 0.2274] 1000 [0.0000: 0.2274] 1000 [0.0000: 0.2274] 1000 [0.0000: 0.2274] 1000 [0.0000: 0.2274] 1000 [0.0000: 0.2274] 1000 [0.0000: 0.2194] 1000 [0.0000: 0.2194] 1000 [0.0000: 0.2194] 1000 [0.0000: 0.2194] 1000 [0.0000: 0.2194] 1000 [0.0000: 0.2194] 1000 [0.0000: 0.0430] 0.0560 [0.0513: 0.0830] 0.0562 [0.0570: 0.0821] 0	F H	Rearrogeneity: /* 20%* Backaula heterogeneity: /* 20%* Backaula heterogeneity: /* 20%* subgroup = inactivated virus BilleP-C-V(SINOPHARM) Corona/vac(sinovac) Fixed effect model Random effects model Named effect model Mitterogeneity: not applicate subgroup = RNA based vacchine BIVT162b2 mitterogeneity: not applicate subgroup = NNA based vacchine BIVT162b2 mitterogeneity: not applicate subgroup = NNA based vacchine BIVT162b2 mitterogeneity: not applicate subgroup = NNA based vacchine BIVT162b2 mitterogeneity: not applicate subgroup = VinA vacchine model heterogeneity: not not not BIVT162b2 BIVT162b2 BIVT162b2 BIVT162b2 Mitterogeneity: not not BIVT162b2 Mitterogeneity: not not BIVT162b2 B	$\begin{array}{c} \begin{array}{c} \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\$	0.1 0.2 0.3 0.4 0.5 0.6 0.7 n(subgroups by	vaccine type) http://www.initialized.com/initialize
E	Residual heterogeneity: * * * Dose2	$\begin{array}{c} \text{BWN, } \rho < 0.01 \\ \text{ chills (st. } \\ \text{Events Total } \\ \\ \text{Events Total } \\ \\ \text{Events Total } \\ \text{Events Total } \\ \\ \ \text{Events Total } \\ \\ \text{Events Total } \\ \\ \ \ \text{Events Total } \\ \\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$	0 0.2 0.4 0.6 Ibgroups k 0 0.1 0.2 0.3 subgroups	0.08 1 Proporti 0.04 0.00 0.04	ne type) on 95/-C1 on 95/-C1 on 95/-C1 on 95/-C1 on [0.000: 0.0430] 98 [0.044: 0.0561] 99 [0.044: 0.0561] 91 [0.284: 0.3051] 92 [0.284: 0.3051] 93 [0.284: 0.3070] 97 [0.235: 0.1370] 90 [0.2051: 0.1370] 91 [0.235: 0.1370] 92 [0.0000: 0.2282] 93 [0.2377: 0.2509] 94 [0.2377: 0.2194] 95 [0.2377: 0.2194] 96 [0.2377: 0.2194] 97 [0.2370: 0.1417] 92 [0.0000: 0.2194] 93 [0.2377: 0.2194] 94 [0.2077: 0.1417] 95 [0.2677: 0.1779] 96 [0.0000: 0.0100: 0.0430] 97 [0.537: 0.0471] 98 [0.0000: 0.0100: 0.0430] 98 [0.0157: 0.1779] 98 [0.0157: 0.1779] <td>F H</td> <td>Rearrangementy: /* = 10%* Backlaudi heterogenenty: /* = 95%* Backlaudi heterogenenty: /* = 95%* Subgroup = Inactivated virus BillerP-Cvr(StoOPHARM) Corona/vac(showac) Fixed effect model Random effects model NUTG202 mixed effect model Random effects model NUTG202 mixed affect model Random effects model Heterogenenty: /* = 100%* Subgroup = NNA based vaccime BIVT16202 mixed affect model Reader affec</td> <td>$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c}$</td> <td>0.1 0.2 0.3 0.4 0.5 0.6 0.7 n(subgroups by</td> <td>vaccine type) http://www.initialized.com/initialize</td>	F H	Rearrangementy: /* = 10%* Backlaudi heterogenenty: /* = 95%* Backlaudi heterogenenty: /* = 95%* Subgroup = Inactivated virus BillerP-Cvr(StoOPHARM) Corona/vac(showac) Fixed effect model Random effects model NUTG202 mixed effect model Random effects model NUTG202 mixed affect model Random effects model Heterogenenty: /* = 100%* Subgroup = NNA based vaccime BIVT16202 mixed affect model Reader affec	$\begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} \begin{array}{c} $	0.1 0.2 0.3 0.4 0.5 0.6 0.7 n(subgroups by	vaccine type) http://www.initialized.com/initialize
E	Residual heterogeneity: / * = : Dose2	$\begin{aligned} & \text{BWN}, p < 0.01 \\ & \text{Chills}(SL \\ & \text{Events} Total \\ & \text{Events} Total \\ & \text{Bist, p = 1.00} \\ & \text{Bist, p = 0.01} \\ & Bi$	0 0.2 0.4 0.6 ibgroups t	0.08 1 Proporti	no 95%-C1 00 95%-C1 00 [0.0000: 0.0430] 989 [0.0441: 0.0555] 010 [0.0442: 0.0554] 010 [0.0442: 0.0554] 010 [0.0000: 0.1323] 011 [0.0000: 0.0282] 011 [0.2364: 0.3070] 012 [0.3370] 013 [0.4371: 0.3770] 013 [0.0000: 0.0282] 010 [0.0000: 0.0282] 010 [0.0000: 0.0282] 010 [0.0000: 0.0282] 010 [0.0000: 0.0282] 010 [0.0000: 0.0282] 010 [0.0000: 0.0282] 010 [0.0000: 0.0282] 010 [0.0000: 0.0282] 010 [0.0000: 0.0282] 010 [0.0000: 0.0282] 0100 [0.0000: 0.0282] 0.0000 [0.0000: 0.0282] 0.0000 [0.0577: 0.0771] 0.0000 [0.0571: 0.4776] 0.0582 [0.0571: 0.4776] 0.2682 [0.1571: 0.4776] <td>F</td> <td>Reactional heterogenetic, "F = 95%, er, 0 Reactional heterogenetic, "F = 95%, er, 0 subgroup = inactivated virus BEIRP-C-VCISONOPHARMU CoronaVac(sinovae) Fixed effect model Random effects model Heterogenetic, "Read, "Read, "Read, "Read BEIRTE-Corol (Stationary) Random effects model Heterogenetic, and applicable subgroup = RNA based vacchine BEIRTE-Corol (Stationary) RENTE-BEIRTE Random effects model Heterogenetic, "Read, "Read, "Read, "Read, "Read Random effects model Heterogenetic, "Read, "Read, "Read, "Read, "Read Random effects model Heterogenetic, "Read, "Read,</td> <td>$\begin{array}{c} \begin{array}{c} \begin{array}{c} 0 \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\$</td> <td>o. 1 o.2 o.3 o.4 o.5 o.6 o.7 n(subgroups by o. 0.1 o.2 o.3 o.4 o.5 o.6 (subgroups by v</td> <td>vaccine type) 95%-CI broportion 95%-CI 0.0000 0.0000: 0.0400 0.1172 0.1080: 0.1285 0.1172 0.1080: 0.1285 0.1172 0.1080: 0.1285 0.4155 0.2680: 0.6683 0.4415 0.2382; 0.8485 0.4415 0.2382; 0.8485 0.4415 0.2382; 0.8485 0.4415 0.2382; 0.8485 0.3362; 0.2382; 0.8485 0.4416 0.3362; 0.2382; 0.24845; 0.26807 0.4416 0.4415 0.2380; 0.1485; 0.24810; 0.2481</td>	F	Reactional heterogenetic, "F = 95%, er, 0 Reactional heterogenetic, "F = 95%, er, 0 subgroup = inactivated virus BEIRP-C-VCISONOPHARMU CoronaVac(sinovae) Fixed effect model Random effects model Heterogenetic, "Read, "Read, "Read, "Read BEIRTE-Corol (Stationary) Random effects model Heterogenetic, and applicable subgroup = RNA based vacchine BEIRTE-Corol (Stationary) RENTE-BEIRTE Random effects model Heterogenetic, "Read, "Read, "Read, "Read, "Read Random effects model Heterogenetic, "Read, "Read, "Read, "Read, "Read Random effects model Heterogenetic, "Read,	$\begin{array}{c} \begin{array}{c} \begin{array}{c} 0 \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} 0 \\ \end{array} \\$	o. 1 o.2 o.3 o.4 o.5 o.6 o.7 n(subgroups by o. 0.1 o.2 o.3 o.4 o.5 o.6 (subgroups by v	vaccine type) 95%-CI broportion 95%-CI 0.0000 0.0000: 0.0400 0.1172 0.1080: 0.1285 0.1172 0.1080: 0.1285 0.1172 0.1080: 0.1285 0.4155 0.2680: 0.6683 0.4415 0.2382; 0.8485 0.4415 0.2382; 0.8485 0.4415 0.2382; 0.8485 0.4415 0.2382; 0.8485 0.3362; 0.2382; 0.8485 0.4416 0.3362; 0.2382; 0.24845; 0.26807 0.4416 0.4415 0.2380; 0.1485; 0.24810; 0.2481

Figure S7. Forest plot of the incidence of ADRs after dose 2 (subgroups by vaccine type). Metaanalysis was performed using R statistical software. Event rates and their corresponding 95% confidence intervals were estimated using both a fixed-effects model and a random-effects model. (A) pain (B) swelling (C) fever (D) fatigue (E) chills (F) Muscle pain(myalgia) (G) Joint pain(arthralgia) (H) headache.



Figure S8. Forest plot of the incidence of ADRs after dose 2 (subgroups by age). Meta-analysis was performed using R statistical software. Event rates and their corresponding 95% confidence intervals were estimated using both a fixed-effects model and a random-effects model. (A) pain (B)

swelling (C) fever (D) fatigue (E) chills (F) Muscle pain(myalgia) (G) Joint pain(arthralgia) (H) headache.

А	RNA based vaccine, dose2— pain(subgroups by age	e) B	RNA based vaccine, dose2— swelling(subgroups by age)
	Study Events Total Proportion 95%	-ci	Study Events Total Proportion 95%-CI
	subgroup = 16 to 55 years old BNT162b2 3683 4722 BNT162b2 3683 4722 BNX16273(Moderna) 9873 10985 Fixed effect model 15707 Random effects model Heterogeneity: I ² = 99%, ² = 0.2097, p < 0.01	17] 44] 83] 38]	subgroup = 16 to 55 years old 283 4722 0.0599 [0.0533; 0.0671] BNT162b2 283 4722 0.0599 [0.0533; 0.0671] mRNA1273(Moderna) 1389 10985 0.1284 [0.1203; 0.1328] Fixed effect model 15707 0.1084 [0.1017; 0.1114] Random effects model 0.0879 [0.0517; 0.1454] Hebrogeneity: /² = 99%, ² = 0.1663, p < 0.01
	subgroup = over 55 years old BNT162b2 2284 3461 ← 0.66599 [0.6439; 0.67 BNRA1273(Moderna) 3070 3692 ← 0.8315 [0.8191; 0.84 Fixed effect model 7153 ◆ 0.7485 [0.7383; 0.75 Random effects model - 0.7557 [0.6183; 0.85	57] 35] 84] 53]	subgroup = over 55 years old 242 3461 0.0699 0.0616; 0.0789] mRNA1273(Moderna) 400 3662 0.1083 0.09985; 0.1188] Fixed effect model 7153 0.0898 (0.0833; 0.0986; 0.0833; 0.0986] Random effects model 7153 0.0874 0.0874 (0.0642; 0.1179] Hebrogenety: /² = 94%, ?² = 0.0542, p < 0.01
	Fixed effect model 22860 0.8223; 0.83 Random effects model 22860 0.82623; 0.83 Heterogeneity: <i>I</i> ² = 1.00%; <i>I</i> ² = 0.3019, <i>p</i> < 0.01	21] 73]	Fixed effect model 22860 0.1012 [0.0974; 0.1052] Random effects model 0.0011 0.006 0.006 0.006 0.0076 [0.0645; 0.1179] Heatcogeneity: l ² = 99%, l ² = 0.109, p < 0.01
C	RNA based vaccine, dose2— fever(subgroups by ag	e) D	RNA based vaccine, dose2— fatigue(subgroups by age)
	Study Events Total Proportion 95%	-CI	Study Events Total Proportion 95%-Cl
	subgroup = 16 to 55 years old BNT162b2 756 4722 mRNA1273(Moderna) 1908 10895 Fixed effect model 15707 0.1686 (0.1638; 0.17 Random effects model Haterogeneity; $J^2 = 50\%$, $\tilde{t} = 0.0012$, $p = 0.04$	09] 09] 56] 78]	subgroup = 16 to 55 years old 0.5900 [0.5756; 0.6041] BN1162b2 2786 4722 0.5900 [0.5756; 0.6041] RNA1273[Moderna) 7430 10985 0.6764 [0.6875; 0.6851] Fixed effect model 15707 0.6346 [0.6728; 0.6522] Heterogeneity: /² = 98%, ?² = 0.3342, p < 0.01
	subgroup = over 55 years old BNT162b2 381 3461 0.1101 [0.0998; 0.12 BNX4273(Moderna) 370 3692 0.1002 [0.0907; 0.11] Fixed effect model 7153 0.1050 [0.0981; 0.11] Hetrogenetyi, "= 0k, r = 0, p = 0.17	10] 04] 23] 23]	subgroup = over 55 years old 0.5100 [0.4932; 0.5268] BN1162b2 1765 3461 0.5100 [0.4932; 0.5268] MRNA1273(Moderna) 2152 3692 0.5829 [0.5688; 0.5989] Fixed effect model 7153 0.5478 [0.5360; 0.5591] Random effects model 0.5477 [0.3360; 0.5967] 0.5467 [0.4958; 0.5967]
	Excel effect model 22860	41] 72]	Fixed effect model 22860 0.6182 [0.6119; 0.6245] Random effects model 0.0507, p < 0.01
Е	RNA based vaccine, dose2— chills(subgroups by ag	le) F	RNA based vaccine, dose2— muscle pain(subgroups by age)
	Study Events Total Proportion 95%	-CI	Study Events Total Proportion 95%-Cl
	subgroup = 16 to 55 years old BNT162b2 1653 4722 mRNA1273(Moderna) 5341 10985 Fixed effect model 15707 Random effects model 45707 Heterogeneity: /² = 95%, ² = 0.0788, p < 0.01	339] 956] 331] 36]	subgroup = 16 to 55 years old BNT16202 ■ 1747 4722 ■ 0.3700 [0.3562; 0.3839] mRNA1273(Moderna) 6769 10985 Fixed effect model 15707 ● 0.5422 [0.5344; 0.5500] Random effects model Heterogeneity: P^2 = 100%, \tilde{c} = 0.2524, ρ < 0.01
	subgroup = over 55 years old BNT162b2 796 3461 → 0.2300 [0.2161; 0.24 MRNA1273(Moderna) 1141 3692 → 0.3090 [0.2942; 0.32 Fixed effect model 7153 ↔ 0.2708 [0.2806; 0.28 Random effects model 4 Heterogenety, /² = 5%, /² = 0.0393, p < 0.01	444] 242] 112] 661]	subgroup = over 55 years old 004 3461 → 0.2901 [0.2750; 0.3055] BNT162b2 1004 3461 → 0.2901 [0.2750; 0.3055] mRNA1272[Moderna) 1739 3692 0.4710 [0.4548; 0.4873] Fixed effect model 7153 0.3855 [0.3723; 0.3948] Random effects model 0.3763 [0.2602; 0.5087] Hetarogeneity: P ² = 9%, P ² = 0.1505, p < 0.01
	Fixed effect model 22860 0.3907 [0.3844; 0.39 Heterogeneity: $l^2 = 9\%$, $l^2 = 0.1715$, $p < 0.01$ 0.25 0.3 0.35 0.4 0.45	070] 444]	Fixed effect model 22860 0.4925 0.4805 0.4990] Random effects model 0.4925 0.4806 0.4937 0.3174 0.5578] Hetrogeneity: /² = 100%, p < 0.01
G	RNA based vaccine, dose2— joint pain(subgroups by a Study Events Total Proportion 95%	age) H -ci	RNA based vaccine, dose2— headache(subgroups by age) Study Events Total Proportion 95%-CI
	subgroup = 16 to 55 years old BNT162b2 1039 4722	321] 339] 117] 169]	subgroup = 16 to 55 years old 2455 4722 0.5199 [0.5055; 0.5342] mRN41272(Moderna) 6898 6988 0.6279 [0.6188; 0.6370] Fixed effect model 15707 0.5955 [0.5878; 0.6031] Random effects model 15707 0.5751 [0.4988; 0.6480] Haterogeneity: l ² = 99%; l ² = 0.0486; p < 0.01
	subgroup = over 55 years old BNT162b2 658 3461 → 0.1901 [0.1772; 0.20 mRN41273(Moderna) 1291 3692 0.3497 [0.3343; 0.36 Pixed effect model 7153 0.2725 [0.2683; 0.36 Random effects model 2.153 0.2622 [0.1667; 0.38	036] 353] 129] 170]	subgroup = over 55 years old 1350 3461 0.3001 [0.3738; 0.4065] mRNA1272(Moderna) 1704 3692 0.4615 [0.4454; 0.4778] Fixed effect model 7153 0.4270 [0.4155; 0.4385] 0.4255 [0.3768; 0.4757] Heterogenety; h ² = 95%, h ² = 0.0203, p < 0.01
	Fixed effect model 22860 0.3491 [0.3430; 0.35 Random effects model 22860 0.3491 [0.3430; 0.35 Heterogeneity: /² = 105%, p < 0.01 1 1 0.2432 0.25 0.3 0.35 0.4 0.45	53] 57]	Fixed effect model 22860 0.5427 [0.5383; 0.5492] Random effects model 0.5003 [0.4141; 0.5865] Heterogeneity: $l^2 = 99\%$, $l^2 = 0.1254$, $p < 0.01$ 0.4 0.45 0.5 0.55 0.6

Figure S9. Forest plot of the incidence of ADRs of RNA-based vaccines after dose 2 (subgroups by age). Meta-analysis was performed using R statistical software. Event rates and their corresponding 95% confidence intervals were estimated using both a fixed-effects model and a random-effects model. (A) pain (B) swelling (C) fever (D) fatigue (E) chills (F) Muscle pain(myalgia) (G) Joint pain(arthralgia) (H) headache.

А	Viral vector vaccine, dose2— pain(sub	groups by age) $^{ m B}$	Viral vector vaccine, dose2— swelling(su	bgroups by age)
	Study Events Total Pro	oportion 95%-Cl	Study Events Total Proport	ion 95%-Cl
	subgroup = 16 to 55 years old AZD1222 24 49 AZ62 COV2.5 1306 2232 Fixed effect model 2281 Random effects model Heterogenety: i² = 0%, i² = 0, p = 0.18	0.4898 [0.3442; 0.6366] 0.5851 [0.5644; 0.6057] 0.5831 [0.5627; 0.6032] 0.5831 [0.5627; 0.6032]	subgroup = 16 to 55 years old AZD1222 0 0 493 00 AZd2 COV2.5 156 2232 0.0 Fixed effect model 2281 0.0 Random effects model Heterogenety: /² = 52%, /² = 1.0509, p = 1.00	000 [0.0000; 0.0725] 899 [0.0597; 0.0813] 884 [0.0587; 0.0795] 99999
	subgroup = over 55 years old AZD1222 15 79	0.1899 [0.1103; 0.2938] 0.3319 [0.3043; 0.3602] 0.3225 [0.2967; 0.3495] 0.2736 [0.1816; 0.3898]	subgroup = over 55 years old AZD1222 2 79 ■ 00 AZd3 COV2 S 00 1124	253 [0.0031; 0.0885] 267 [0.0181; 0.0379] 266 [0.0189; 0.0374] 266 [0.0189; 0.0374]
	Fixed effect model 3484 Random effects model	0.4931 [0.4765; 0.5097] 0.3910 [0.2484; 0.5549]	Fixed effect model 3484	540 [0.0469; 0.0620] 334 [0.0158; 0.0693]
С	Viral vector vaccine, dose2— fever(sub Study Events Total Pro	portion 95%-CI	Viral vector vaccine, dose2— fatigue(sub Study Events Total Pr	ogroups by age)
	subgroup = 16 to 55 years old AZD1222 0 490 AZD6COV2.5 285 2282 Fixed effect model Random effects model	0.0000 [0.0000; 0.0725] 0.1277 [0.1141; 0.1422] 0.1249 [0.1120; 0.1392]	subgroup = 16 to 55 years old AzD1222 27 49 Ad26 COV.25 981 2232 ₩ Random effects model Random effects model Heterogeneyr, "= 0%, f = 0, p = 0.12	0.5510 [0.4023; 0.6933] 0.4395 [0.4188; 0.4604] 0.4419 [0.4216; 0.4624] 0.4419 [0.4216; 0.4624]
	subgroup = over 55 years old AZD1222 0 79 AZABCOV2.5 35 1124 Fixed effect model 1203 ♦ Random effects model 400.0 ♦	0.0000 [0.0000; 0.0456] 0.0311 [0.0218; 0.0430] 0.0291 [0.0210; 0.0403] 0.0291 [0.0210; 0.0403]	subgroup = over 55 years old AZD1222 28 79 AZ8.COV2.5 334 1124 Fixed effect model Random effects model Heterogenety, f ² = 0%, f ² = 0, p = 0.28	0.3544 [0.2500; 0.4701] 0.2972 [0.2706; 0.3248] 0.3009 [0.2756; 0.3274] 0.3009 [0.2756; 0.3274]
	Fixed effect model 3484 Random effects model Heterogeneity: <i>I</i> ² = 98%, <i>I</i> = 3.0024, <i>p</i> < 0.001	0.0918 [0.0827; 0.1019] 0.0164 [0.0015; 0.1584]	Fixed effect model 3484 Random effects model Heterogeneity: $l^2 = 93\%$, $l^2 = 0.1112$, $p < 0.01$ Residual heterogeneity: $l^2 = 43\%$, $p = 0.17$ 0.3 0.4 0.5 0.6	0.3932 [0.3771; 0.4096] 0.3953 [0.3111; 0.4863]
Е	Viral vector vaccine, dose2— chills(sul	ogroups by age) F V	/iral vector vaccine, dose2— muscle pain(subgroups by age)
	Study Events Total Pro	oportion 95%-CI	Study Events Total P	roportion 95%-CI
	subgroup = 16 to 55 years old Az021222 49 49 40 Az082C0V2.5 0 2232 Fixed effect model 2281 Random effects model Heergosneyl, r ² = 97%, r ² = 29.876, p 5 00	0.1429 [0.0594; 0.2724] 0.0000 [0.0000; 0.0017] 0.0031 [0.0015; 0.0064]	subgroup = 16 to 55 years old AzD1222 H 4 49 Ad26 COV2.5 874 2232 Fixed effect model 2281 Random effects model Helerogeneity. <i>P</i> = 05, <i>f</i> = 0, <i>p</i> = 0.53	0.3469 [0.2167; 0.4964] 0.3916 [0.3713; 0.4122] 0.3906 [0.3708; 0.4108] 0.3906 [0.3708; 0.4108]
	subgroup = over 55 years old AZD1222 Fixed effect model Random effects model Herergenetic, $\Gamma = 91\%, c^2 = 12,3328, p = 100$	0.0380 [0.0079; 0.1070] 0.0000 [0.0000; 0.0033] 0.0025 [0.0008; 0.0077] 	subgroup = over 55 years old AZD1222 16 79 AZBCOV2S 270 1124 Fixed effect model 1203 Random effects model Heterogeneity, /* = 0, k = 0, p = 0.45	0.2025 [0.1204; 0.3080] 0.2402 [0.2155; 0.2663] 0.2377 [0.2145; 0.2626] 0.2377 [0.2145; 0.2626]
	Fixed effect model 3484 Random effects model 1 Heterogeneity: l ² = 7%, l ² = 0.9749, p = 5 5 Residual heterogeneity: l ² = 0%, p = 1.00 0.05 0.1 0.15 0.2 0.25	0.0029 [0.0015; 0.0053] 0.0011 [0.0000; 0.2029]	Fixed effect model 3484 Random effects model Heterogeneity: <i>i</i> ² = 33%, <i>i</i> ² = 0.1180, <i>p</i> < 0.07	0.3378 [0.3223; 0.3537] 0.2929 [0.2203; 0.3778]
G	Viral vector vaccine, dose2— joint pain(s ^{Study} Events Total Pro	portion 95%-CI	Viral vector vaccine, dose2— headache(s ^{Study} Events Total P	ubgroups by age)
	subgroup = 16 to 55 years old AZD1222 3 49 AZD2022 0 2232 Fixed effect model 2281 Random effects model Heterogeneity: /² = 95%, /² = 20 6238, p = 00	0.0612 [0.0128; 0.1687] 0.0000 [0.0000; 0.0017] 0.0013 [0.0004; 0.0041] ====================================	subgroup = 16 to 55 years old ▲ AZD1222 15 49 AZ8COV2.8 999 232 Fixed effect model 2281 ♦ Random effects model 40, 00, 00, 00, 00, 00, 00, 00, 00, 00,	0.3061 [0.1825; 0.4542] 0.4476 [0.4268; 0.4685] 0.4445 [0.4243; 0.4650] 0.4445 [0.4243; 0.4650]
	subgroup = over 55 years old AZD1222 9 74 AZD6 COV2. 0 1124 Fixed effect model Random effects model Heterogeneity: P ² = 95%, ² = 21.5411, p = 00	0.1139 [0.0534; 0.2053] 0.0000 [0.0000; 0.0033] 0.0075 [0.0039; 0.0143]	subgroup = over 55 years old AZD1222 20 79 AZ8 COV2.8 344 1124 Fixed effect model Random effects model Hethrogeneity: /F = 0%, f = 0, p = 0.32	0.2532 [0.1620; 0.3636] 0.3060 [0.2792; 0.3339] 0.3026 [0.2773; 0.3291] 0.3026 [0.2773; 0.3291]
	Fixed effect model 3484 Random effects model Heterogeneity: / ² = 98%, / ² = 21.4237, p = 0.81	0.0034 [0.0020; 0.0061] 0.0012 [0.0000; 0.2216]	Fixed effect model 3484 Random effects model 9484 Heterogeneity: $t^2 = 92\%$, $t^2 = 0.0969$, $p < 0.01$	0.3955 [0.3794; 0.4119] 0.3368 [0.2622; 0.4204]

Figure S10. Forest plot of the incidence of ADRs of viral vector (non-replicating) vaccines after dose 2 (subgroups by age). Meta-analysis was performed using R statistical software. Event rates and their corresponding 95% confidence intervals were estimated using both a fixed-effects model and a random-effects model. (A) pain (B) swelling (C) fever (D) fatigue (E) chills (F) Muscle pain(myalgia) (G) Joint pain(arthralgia) (H) headache.

A Dose2— pain≥ grade 3(subgroups by vaccine type)

Tota

subgroup = inactivated virus CoronaVac(sinovac) Fixed effect model Random effects model Helengenety, not applicable	0 6202	0.0000 (0.0003; 0.0 	006]
subgroup = protein subunit NVX-COV2373 Fixed effect model Random effects model belenvendty red andreate	0 20	0.0000 [0.000; 0.1]	323]
subgroup = RNA based vace BNT162b2 mRNA1273(Moderna) Fixed effect model Random effects model Heterogenety / ² = 99%, ² = 0.4	Ine 88 8183 604 14677 22860 600, p < 0.01	0.0108 [0.0086; 0.0 0.0412 [0.0380; 0.0 0.0303 [0.0281; 0.0 0.0212 [0.0083; 0.0]	132] 445] 326] 333]
subgroup = viral vector(non- Sputnik V(Gam-COVID-Vac) AZD1222 Ad28 COV2.S Fixed effect model Random effects model Intervorenet rf= 05, 2 = 0 o	replicating) 0 20 0 128 11 3356 3504	0.0000 [0.0000, 0.1 0.0000 [0.0000, 0.0 0.0033 [0.0018, 00 0.0031 [0.0017; 0.0 0.0031 [0.0017; 0.0	884] 284] 059] 057] 057]
Fixed effect model Random effects model Heterogeneity: / ² = 99%, ² = 6.6 Residual beterogeneity, ² = 99%	32592	0.0216 [0.0200; 0.0; 0.0014 [0.0001; 0.0;	232] 216]

C Dose2— fever≥ grade 3(subgroups by vaccine type)

Study	Events	Total	Proportion	95%-CI
subgroup = inactivate CoronaVac(sinovac) Fixed effect model	d virus O	6202	0.0000 [0.	0000; 0.0006]
Random effects model relerogeneity not applica	l ble	1	0.4600 a.ju	
ubgroup = protein su VVX-COV2373	bunit 0	20	0.0000 10.	0000: 0.13231
Fixed effect model		26		
deterogeneity not applica	italen.	:1		
subgroup = RNA base	d vaccine	문		
INT162b2 nRNA1273(Moderna)	97	8183	0.0119 [0.	0096; 0.0144] 0128: 0.01671
Fixed effect model Random effects model teterogeneity $T^2 = 31\%$	τ τ = 0.00035, ρ =	22860 0.08	0.0136 [0. 0.0136 [0.	0122; 0.0162] 0117; 0.0166]
subgroup = viral vecto	r(non-replica	ting)		
Sputnik V(Gam-COVID	-Vac) 0	20	0.0000 [0.	0000; 0.1684]
428 COV2 S	8	3356	0.0024 [0	0000, 0.0284j
fixed effect model		3504 .	0.0023 [0.	0011; 0.0046]
Random effects mode	Konser and		0.0023 [0.	0011; 0.0046]
Heterogeneity: 12 - 0%, 7	- 0, p - 1.00	÷1		
Fixed effect model		32592	0.0098 [0.	0088; 0.0109]
Random effects mode	Ç -	>	0.0014 [0.	0001; 0.0146]
Heterogeneity: 12 = 99%,	f = 4.8765, p <	0.01		
Residual heterogeneity: 1 ²	= 1%, p = 0.39	0 0.05	0.1 0.15	

 $_{\rm B}$ Dose2— swelling≥ grade 3(subgroups by vaccine type)

Study	Events Total		Proportion	95%-CI	
subgroup = inactivated via CoronaVac(sinovac) Fixed effect model Random effects model Helesoperity opt application	0 6202		0.0000 [0.	0000; 0.0006]	
subgroup = protein subun NVX-COV2373 Fixed effect model Random effects model Hotorogeneth; not applicable	t D 26		0.0000 (0	0000; 0. 1323] National Control	
subgroup = RNA based va BNT162b2 mRNA1273(Moderna) Fixed effect model Random effects model Heterogenetty, I ² = 97%, I ² = 1	24 8183	8	0.0029 [0. 0.0173 [0. 0.0122 [0. 0.0072 [0.	0019; 0.0044] 0153; 0.0195] 0108; 0.0137] 0021; 0.0248]	
subgroup = viral vector(nr Sputnik V(Gam-COVID-Va AZD1222 Ad28 COV2 S Fixed effect model Random effects model Heterogenety, I ² = 0%, I ² = 0	n-replicating) 0 20 0 128 6 3356 3504 p = 1.00		0.0000 [0. 0.0000 [0. 0.0018 [0 0.0017 [0. 0.0017 [0.	0000; 0.1684] 0000; 0.0284] 0007; 0.0039] 0008; 0.0038] 0008; 0.0038]	
Fixed effect model Random effects model Heterogeneity $l^2 = 9696$, $\vec{r} = -$ Residual heterogeneity: $l^2 = 9$	32592 0554, p < 0.01 %, p < 0.01 0	0.05 0.1	0.0087 [0. 0.0011 [0.	0078; 0.0098] 0001; 0.0094]	

D Dose2— fatigue≥ grade 3(subgroups by vaccine type)

Study	Events	Total		Proportion	95%-CI	
subgroup = inactivated viru CoronaVac(sinovac) Fixed effect model Random effects model	¹⁵ D	6202		0.0000	(0.0000; 0.0006) (0.0000; 0.0006)	_
ieterogeneity: not applicable ubgroup = protein subunit NX-COV2373 Ixed effect model andom effects model ieterogeneity: not applicable	1	26 26	-	0.0385	[0.0010; 0.1964] [0.0054; 0.2279] [0.0054; 0.2279]	
rubgroup = RNA based vac SNI 162b2 nRNA1273(Moderna) Fixed effect model Random effects model teterogeneity: 1 ² - 99%, ² = 0.	2150, p <	8183 14677 22860 0.01		0.0407 0.0973 0.0770 0.0634	[0.0365; 0.0452] [0.0925; 0.1022] [0.0736; 0.0806] [0.0343; 0.1145]	
subgroup = viral vector(not Sputnik V(Gam-COVID-Vac AZD1222 AZG6,COV2.S Fixed effect model Random effects model releasogneity. I ² = 0%, ² = 0, 1	n-replica 0 0 36 0 = 1.00	ting) 20 128 3356 3504	Ī	0.0000 0.0000 0.0107 0.0103 0.0103	[0.0000; 0.1684] [0.0000; 0.0284] [0.0075; 0.0148] [0.0074; 0.0142] [0.0074; 0.0142]	
Fixed effect model Random effects model leterogeneity: I ² = 100%, ? = 1 Residual beteropeneity: I ² = 99	3.0913, <i>p</i> - % <i>p</i> < 0.0	32592 : 0.01 P	005 01	0.0552 0.0043	[0.0527; 0.0577] [0.0003; 0.0536]	

E Dose2— chills≥ grade 3(subgroups by vaccine type)

Study	Events	Total			Proportion	95%-CI	(fixed)	Weight (random)
subgroup = inactivated viru								
CoronaVac(sinovac)	0	6202 •	(1		0.0000	[0.0000; 0.0006]	0.1%	3.9%
Fixed effect model		6202	1		0.0001	[0.0000; 0.0013]	0.1%	
Random effects model Heterogeneity not applicable			9		0.0001	[0.0000; 0.0013]		3.9%
subarous a protein subunit			9 - C					
NVX-COV2373	0	26 ←	- L		0.0000	10.0000: 0.13231	0.1%	4.0%
Fixed effect model		26 -		_	istood-	DD-DD-CC-D.29381	0.1%	-
Random effects model			_		intended	AD-10-07-0 29381		4.0%
Heterogeneity: not applicable			3					
subgroup = RNA based vac	cine		4					
BNT162b2	169	8183	- 53		0.0207	[0.0177; 0.0240]	46.8%	40.0%
mRNA1273(Moderna)	191	14677			0.0130	[0.0112; 0.0150]	52.5%	40.1%
Fixed effect model		22860			0.0162	[0.0146; 0.0179]	29.3%	
Random effects model Heterogeneity: $l^2 = 95\%$, $\tilde{t} = 0$.	1012, p <	0.01	7		0.0164	[0.0104; 0.0268]		80.1%
subgroup = viral vector(nor	-replica	(pnit	2					
Sputnik V(Gam-COVID-Vac)	0	20 +	-		0.0000	10.0000; 0.16841	0.1%	4.0%
AZD1222	0	128 -	+-		0.0000	[0.0000; 0.0284]	0.1%	4.0%
Ad26 COV2 S	0	3356 •	÷.		0.0000	[0.0000, 0.0011]	0.1%	3.9%
Fixed effect model		3504 0			0.0025	[0.0005: 0.0121]	0.4%	-
Random effects model		•	-		0.0024	[0.0001; 0.0452]		11,9%
Heterogeneity: $l^2 = 70\%$, $\vec{r} = 4.1$	6696, p -	0.03	9					
Fixed effect model		32592			0.0160	[0.0144; 0.0177]	100.0%	
Random effects model			•		0.0107	[0.0060; 0.0191]		100.0%
Heterogeneity: I2 - 87%, 7 - 0.	2123.p <	0.01						
Residual heterogeneity. I ² = 893	b, p < 0.0	0	0.05	0.1 0.15				

Dose2— muscle pain≥ grade 3(subgroups by vaccine type)

ents	Total		Proportion	95%-CI
0	6202	1	0.0000	[0.0000; 0.0006]
	1	1		
1	26 26	; = = = -	0.0385	[0.0010; 0.1984] [0.0054: 0.2279] [0.0054: 0.2279]
ne 160 1318 76, p <	8183 14677 22860 0.01		0.0196 0.0898 0.0647 0.0425	[0.0167; 0.0228] [0.0852; 0.0945] [0.0615: 0.0679] [0.0144: 0.1188]
replica 0 33	ting) 20 128 3358 3504		- 0.0000 0.0000 0.0098 0.0094 0.0094	[0.0000; 0.1684] [0.0000; 0.0284] [0.0068; 0.0138] [0.0067; 0.0132] [0.0067; 0.0132]
	32592	_	0.0464	[0.0442; 0.0487] [0.0003; 0.0432]
	Events 0 1 160 1318 676, p < 0 33 3 3	vents Total 0 6202 1 28 1 28 1 28 1 1318 1400 9103 1318 14077 22890 976, p < 0.01	Vents Total 0 0222 1 2 2 1 2 2 1 1 2 2 5 1 1 2 2 5 1 1 2 2 5 1 1 2 2 5 1 1 1 2 2 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Events Total Proportion 0 0.0000 0.0000 1 20 0.0000 1 20 0.0000 1 20 0.0000 1 20 0.0000 1 20 0.0000 1 20 0.0000 1 20 0.0000 1 20 0.0000 1 20 0.0000 0 0.0000 0.0000 0 1000 0.0000 0 0.0000 0.0000 0 0.0000 0.0000 0 0.0000 0.0000 0 0.0000 0.0000 0 0.0000 0.0000 0 0.0000 0.00000 0 0.0000 0.00000 0 0.00000 0.00000 0 0.00000 0.00000 0 0.00000 0.00000 0 0.000000 0.000000

G Dose2— joint pain≥ grade 3(subgroups by vaccine type) H Dose2— headache≥ grade 3(subgroups by vaccine type)

tudy Eve	ents	Total		Proportion	95%-CI	(fixed) (ra	andom)	Study	Events	Total	Proportio	n 95%-Cl
group = inactivated virus								subgroup a inactivated a	ine			
onaVac(sinovac)	0	6202 .	- E	0.0000 10.00	00: 0.00061	0.1%	9.3%	Coronal/ac(sincerac)	0	6202	0.000	0 10 0000-0 00061
d effect model		6202 .		0.001 [0.00	00: 0.0013]	0.1%		Eived effect model		6202	0.000	0 [0.0000, 0.0000]
lom effects model				0.0001 [0.00	00: 0.0013]	100.000	9.3%	Random effects model		0102		
ogeneity: not applicable			1					Helerogeneity: not applicable		2.1		
group = protein subunit								subarous a protein subu	nit	î. î.		
-COV2373	1	26		0.0385 [0.00	10: 0.1964]	0.2%	15.9%	NVX-COV2272	0	2010	0.000	0 10 0000- 0 12221
l effect model		26 🛥		8-8685 [0.00	56; 0.2628]	0.2%		Eived effect model		26	0.000	0 [0.0000, 0.1020]
iom effects model		-		8-8685 [0.00	56; 0.2628]		15.9%	Pandom effects model				
ogeneity: not applicable		;						Helerogeneity not applicable		11		
group = RNA based vaccine		1	i i					subayoun y DNA based a	and and	1.1		
162b2	93	8183 .		0.0114 [0.00	92; 0.0139]	10.4%	23.3%	DNT18252	212	0102 * 11	0.026	0 10 0227 0 02071
A1273(Moderna)	770	14677	100	0.0525 [0.04	89; 0.0562]	89.2%	23.5%	mPNA1272/Moderna)	660	14677	0.020	0 10 0446- 0 04941
d effect model		22860 .	•	0.0448 [0.04	19; 0.0478]	99.6%		minuter (2) of modernay	0.56	00000	hal 0.044	a 10.0410, 0.04041
dom effects model		*		0.0245 [0.00	55: 0.1097]		46.8%	President official and del		1.000	0.035	1 [0.0007, 0.0407]
rogeneity; / ² = 99%, - ² = 1.1639,	P S	0.01						Helerogeneity /2 = 96%, 7	0.0769, p <	0.01	0.034	4 (0.0230; 0.0001)
proup = viral vector(non-rep	plicar	ting) :	1	000000000000000000000000000000000000000	10000000000	201020025	122,980			1		
iik v(Gam-COVID-Vac)	0	20		0.0000 [0.00	00:0.1684]	0.1%	9.4%	Subgroup - viral vectori	ion-replica	aniti I	0.000	
222	0	128		0.000 [0.00	00.00284]	0.1%	33.25%	approved v(Gam-COVID-V	ac) U	2018	0.000	0 10.0000; 0.1684]
COV2.S	0	3356 +.	1	0.000 [0.00	00: 0.0011]	0.1%	9.3%	AZD1222		128	- 0.007	8 [0.0002; 0.0428]
i effect model		3504		0.0025 [0.00	05:0.0121]	0.2%		Ad26 COV2 S	24	3350	0.007	2 10 0046, 0 01061
iom effects model		¢		0.0024 [0.00	01: 0.0452]		28.1%	Fixed effect model		3004	0.007	T [U.UU48; 0.0105]
ogenery: r= r0%, ±=4.6890,	(per	1.115 •	1					Random effects model			0.007	1 [U.UU48; 0.0105]
		î	1					reserve energienelity, I* = 0%, # =	$p_{i} p = 1.00$	· · ·		
effect model		32592 .	•	0.0444 [0.04	16; 0.0474]	100.0%		star when it are			50.00 M	
Iom effects model		2		0.0086 [0.00	29; 0.0266]		100.0%	Fixed effect model		32592 . •	0.027	5 [0.0258; 0.0294]
agenetty: /* = 97%, * = 1.3097,	.p <	0.01		a land				Random effects model		2	0.003	6 [0.0004; 0.0303]
tual neterogeneity: I" = 99%, p +	< 0.01	0	0.05 0.1	0.15				Heterogeneity: /2 = 100%, 7	= 5.4247. p ·	0.01	and the second sec	
								Desidual beterngeneity: 12 -	0.0 > 0 2040		0.06 0.1 0.16	

Figure S11. Forest plot of the incidence of ADRs over grade 3 after dose 2 (subgroups by vaccine type). Meta-analysis was performed using R statistical software. Event rates and their corresponding 95% confidence intervals were estimated using both a fixed-effects model and a random-effects model. (A) pain (B) swelling (C) fever (D) fatigue (E) chills (F) Muscle pain(myalgia) (G) Joint pain(arthralgia) (H) headache.

Table S1. Vaccine Efficacy of COVID-19 vaccines

Table S2. List of ADRs of COVID-19 vaccines in meta-analysis

Table S3. Characteristics of severe and rare ADRs of COVID-19

Table S4. The clinical characteristics of VAERS

Table S5. The incidence of ADRs of COVID-19 vaccine in VAERS (Heatmap)

Table S6. The incidence of ADRs of COVID-19 vaccine in VAERS (subgroups by vaccine type)

Table S7. The incidence of ADRs of MODERNA vaccine in VAERS (subgroups by age)

Table S8. The incidence of ADRs of PFIZER-BIONTECH vaccine in VAERS (subgroups by age)

Table S9. The incidence of ADRs of MODERNA vaccine in VAERS (subgroups by gender)

Table S10. The incidence of ADRs of PFIZER-BIONTECH vaccine in VAERS (subgroups by gender)