Barnaby Edward Young

Director, Singapore Infectious Disease Clinical Research Network, CDA
Head, NCID Clinical Trials Unit
Co-Director, P.H. Feng Research Centre, TTSH
Senior Consultant, Department of Infectious Diseases, TTSH/NCID
Associate Professor, Lee Kong Chian School of Medicine, NTU

Research Interests:

- Controlled Human Infection studies
- Clinical Trials
- Immunology and Vaccines
- Respiratory virus infections

Email: Barnaby_Young@ncid.sg

Biography

A/Prof Barnaby Young is an infectious disease senior consultant at NCID and TTSH and jointly appointed at Lee Kong Chian School of Medicine. He is Director of the Singapore Infectious Disease Clinical Research Network (SCRN) at CDA and co-ordinates prospective observational studies and randomised controlled trials in collaboration with public hospitals and polyclinics in Singapore. His research interests are primarily in controlled human infection studies including with SARS-CoV-2 and dengue. He is the database core lead in Programme for Research in Epidemic Preparedness and Response (PREPARE), Ministry of Health and holds an NMRC CSA. He has held >$10 million in research grants as principal investigator and published >200 peer reviewed papers including in top journals such as NEJM, Lancet, JAMA and Science.

Selected Publications

- Tan CW, Chia WN, Young BE, Zhu F, Lim BL, Sia WR, Thein TL, Chen MI, Leo YS, Lye DC, Wang LF. Pan-Sarbecovirus Neutralizing Antibodies in BNT162b2-Immunized SARS-CoV-1 Survivors. N Engl J Med. 2021 Oct 7;385(15):1401-1406. doi: 10.1056/NEJMoa2108453. Epub 2021 Aug 18. PMID: 34407341; PMCID: PMC8422514. https://www.nejm.org/doi/10.1056/NEJMoa2108453?url_ver=Z39.88-2003&rfr_id=ori:rid:crossref.org&rfr_dat=cr_pub%20%200pubmed

- Pung R, Chiew CJ, Young BE, Chin S, Chen MI, Clapham HE, Cook AR, Maurer-Stroh S, Toh MPHS, Poh C, Low M, Lum J, Koh VTJ, Mak TM, Cui L, Lin RVTP, Heng D, Leo YS, Lye DC, Lee VJM; Singapore 2019 Novel Coronavirus Outbreak Research Team. Investigation of three clusters of COVID-19 in Singapore: implications for surveillance and response measures. Lancet. 2020 Mar 28;395(10229):1039-1046. doi: 10.1016/S0140-6736(20)30528-6
https://www.thelancet.com/journals/lancet/article/PIIS0140-6736%2820%2930528-6/fulltext

- Young BE, Fong SW, Chan YH, Mak TM, Ang LW, Anderson DE, Lee CY, Amrun SN, Lee B, Goh YS, Su YCF, Wei WE, Kalimuddin S, Chai LYA, Pada S, Tan SY, Sun L, Parthasarathy P, Chen YYC, Barkham T, Lin RTP, Maurer-Stroh S, Leo YS, Wang LF, Renia L, Lee VJ, Smith GJD, Lye DC, Ng LFP. Effects of a major deletion in the SARS-CoV-2 genome on the severity of infection and the inflammatory response: an observational cohort study. Lancet. 2020 Aug 29;396(10251):603-611. doi: 10.1016/S0140-6736(20)31757-8. Epub 2020 Aug 18. PMID: 32822564; PMCID: PMC7434477.
https://www.thelancet.com/journals/lancet/article/PIIS0140-6736(20)31757-8/fulltext

- Tong SYC, Lye DC, Yahav D, Sud A, Robinson JO, Nelson J, Archuleta S, Roberts MA, Cass A, Paterson DL, Foo H, Paul M, Guy SD, Tramontana AR, Walls GB, McBride S, Bak N, Ghosh N, Rogers BA, Ralph AP, Davies J, Ferguson PE, Dotel R, McKew GL, Gray TJ, Holmes NE, Smith S, Warner MS, Kalimuddin S, Young BE, Runnegar N, Andresen DN, Anagnostou NA, Johnson SA, Chatfield MD, Cheng AC, Fowler VG Jr, Howden BP, Meagher N, Price DJ, van Hal SJ, O'Sullivan MVN, Davis JS; Australasian Society for Infectious Diseases Clinical Research Network. Effect of Vancomycin or Daptomycin With vs Without an Antistaphylococcal β-Lactam on Mortality, Bacteremia, Relapse, or Treatment Failure in Patients With MRSA Bacteremia: A Randomized Clinical Trial. JAMA. 2020 Feb 11;323(6):527-537. doi: 10.1001/jama.2020.0103. PMID: 32044943; PMCID: PMC7042887.
https://jamanetwork.com/journals/jama/fullarticle/2760737

- Young BE, Ong SWX, Kalimuddin S, Low JG, Tan SY, Loh J, Ng OT, Marimuthu K, Ang LW, Mak TM, Lau SK, Anderson DE, Chan KS, Tan TY, Ng TY, Cui L, Said Z, Kurupatham L, Chen MI, Chan M, Vasoo S, Wang LF, Tan BH, Lin RTP, Lee VJM, Leo YS, Lye DC; Singapore 2019 Novel Coronavirus Outbreak Research Team. Epidemiologic Features and Clinical Course of Patients Infected With SARS-CoV-2 in Singapore. JAMA. 2020 Apr 21;323(15):1488-1494. doi: 10.1001/jama.2020.3204
https://jamanetwork.com/journals/jama/fullarticle/2762688

- Lin QXX, Rajagopalan D, Gamage AM, Tan LM, Venkatesh PN, Chan WOY, Kumar D, Agrawal R, Chen Y, Fong SW, Singh A, Sun LJ, Tan SY, Chai LYA, Somani J, Lee B, Renia L, Ng LFP, Ramanathan K, Wang LF, Young B, Lye D, Singhal A, Prabhakar S. Longitudinal single cell atlas identifies complex temporal relationship between type I interferon response and COVID-19 severity. Nat Commun. 2024 Jan 18;15(1):567. doi: 10.1038/s41467-023-44524-0.
Longitudinal single cell atlas identifies complex temporal relationship between type I interferon response and COVID-19 severity | Nature Communications

- Poh XY, Lee IR, Tan CW, Chavatte JM, Fong SW, Goh YS, Rouers A, Wong N, Torres-Ruesta A, Mah SYY, Yeoh AYY, Gandhi M, Rahman N, Chin YQ, Lim JJ, Yoong TJK, Rao S, Chia PY, Ong SWX, Lee TH, Sadarangani SP, Lin RJH, Lim DRX, Chia W, Renia L, Ren EC, Lin RTP, Lye DC, Wang LF, Ng LFP, Young BE. First SARS-CoV-2 Omicron infection as an effective immune booster among mRNA vaccinated individuals: final results from the first phase of the PRIBIVAC randomised clinical trial. EBioMedicine. 2024 Aug 12;107:105275. doi: 10.1016/j.ebiom.2024.105275. https://doi.org/10.1016/j.ebiom.2024.105275

- Wee LE, Lim JT, Tay AT, Chiew CJ, Young BE, Wong B, Lim R, Lee CL, Tan J, Vasoo S, Lye DC, Tan KB. Nirmatrelvir/ritonavir treatment and risk for postacute sequelae of COVID-19 in older Singaporeans. Clin Microbiol Infect. 2024 Aug 28:S1198-743X(24)00418-X. doi: 10.1016/j.cmi.2024.08.019. Epub ahead of print. https://www.sciencedirect.com/science/article/abs/pii/S1198743X2400418X https://academic.oup.com/ofid/article/12/Supplement_1/ofae631.2172/7988284

- Mourad A, Grandits GA, Siegel LK, Engen N, Barkauskas C, Eriobu N, Jain MK, Jensen TO, Ginde A, Higgs E, Knox DB, Kitonsa J, Kim K, Malin JJ, Rapti V, Price DA, Mena Lora AJ, Mathews G, Mylonakis E, Murray TA, Sandkovsky U, Paredes R, Ramachandruni S, Reilly C, Vock D, Williamson JC, Young BE, Self WH, Lundgren J, Holland TL; INSIGHT ACTIV-3/TICO Study Group and the STRIVE Network. Long-term outcomes of passive immunotherapy for COVID-19: a pooled analysis of a large multinational platform randomized clinical trial. Clin Microbiol Infect. 2025 Feb 6:S1198-743X(25)00060-6. doi: 10.1016/j.cmi.2025.02.002. Epub ahead of print. PMID: 39922466. https://www.clinicalmicrobiologyandinfection.com/article/S1198-743X(25)00060-6/fulltext

Notable Research/Innovation Awards & Grants from Past 5 Years

Name of Awards & Grants	Year Obtained
RIE2020 Collaborative CG Seed Funding A multi-centered prospective study to detect and characterise 2019 Novel Coronavirus (2019-nCoV)	2020
NMRC COVID-19 Research Fund Understanding the clinical features and immune-pathogenesis of COVID-19	2020
NMRC COVID-19 Research Fund ACTIV-3: Therapeutics for Inpatients with COVID-19	2020
COVID-19 Research Fund 3rd Grant Call Duration of immune response and identification of markers of sequelae in SARS-CoV-2 recovered patients	2020
NMRC COVID-19 Research Fund Singapore COVID-19 Vaccine Immune Response and Protection Study (SCOPE)	2021

NMRC COVID-19 Research Fund Heterologous Prime-Boost-Boost Vaccine Combinations for Long-Term Humoral and Cellular Immunity Against COVID-19	2021
Programme for Research in Epidemic Preparedness And Response (PREPARE) Core Funding 1 (Infectious Disease Clinical and Research Databases)	2022
Clinician Scientist Award (CSA) Investigator (INV) Category The Singapore Platform for Controlled Human Infections with SARS-CoV-2 ('Sing-CoV')	2023
European Union's Horizon Europe Programme and the Coalition for Epidemic Preparedness Innovations (CEPI) Mucosal Immunity in human Coronavirus Challenge (MusiCC) project	2024
Human Infection Challenge Vaccine (HIC-Vac) Development Network (HIC-Vac) pump priming award Developing a Dengue Challenge Model in Previously Infected Individuals in Endemic South-East Asia	2024

Translating Research/Innovation Into Healthcare

2025:

- Five volunteers exposed to Covid-19 virus in Singapore's first human challenge trial. Published on 17 Mar 2025. https://www.straitstimes.com/singapore/five-volunteers-exposed-to-covid-19-virus-in-singapores-first-human-challenge-trial

- Local first controlled human infection trial: Volunteers accept coronavirus infection. Published on 17 Mar 2025. https://www.zaobao.com.sg/news/singapore/story20250316-6025716

2024:

- 21 million deaths. Over 7m Covid-19 fatalities recorded, but actual number may be 3 times higher. Published on 05 Feb 2024. https://www.straitstimes.com/world/over-7m-covid-19-deaths-recorded-but-actual-fatalities-may-be-three-times-higher-who?login=true&close=true

- Long COVID in Kids Hard to Pinpoint. Published on 13 Mar 2024. https://www.straitstimes.com/life/long-covid-left-a-10-year-old-unable-to-walk-without-support

- 让健康人“**以身**试毒" **本地将展开首个冠病“人体挑**战试验 (Singapore to launch first human challenge studies for COVID-19). Published on 09 Apr 2024. https://www.zaobao.com.sg/news/singapore/story20240409-3332669

- Commentary: What prompts people to deliberately expose themselves to an infection? Published 04 May 2024 https://www.channelnewsasia.com/commentary/people-volunteer-deliberately-exposed-infectious-disease-research-challange-study-4288236

- Human ‘challenge trials’ entail risk but they could be our best protection against the next pandemic. Published 30 May 2024 https://www.telegraph.co.uk/global-health/science-and-disease/human-challenge-trials-risk-viruses-diseases-pandemic/

2023:

- Local study: Inflammation of long COVID can be recovered within two years. Published on 27 Jun 2023. https://www.zaobao.com.sg/news/singapore/story20230626-1408125

- Moderna more effective as a booster shot for those over 60 who received Pfizer vaccination. Published on 17 Mar 2022.

- https://www.todayonline.com/singapore/moderna-protection-booster-ncid-study-1848961
- https://www.mewatch.sg/watch/Mar-2022-CH-5-News-Tonight-280365
- https://www.mewatch.sg/watch/Mar-2022-CNA-Singapore-Tonight-280539?redirect=true
- https://www.mewatch.sg/watch/Mar-2022-Asia-Tonight-280366
- https://www.mediaportal.com/mp/playnow.aspx?u=150634&p=2082834245&key=208443817024196170164191991492081112208617 7
- https://www.mediaportal.com/mp/playnow.aspx?u=150634&p=2082781328&key=501929424315716196106195812464472491751 42
- https://www.bangkokbiznews.com/world/994219
- https://www.straitstimes.com/singapore/health/moderna-more-effective-as-a-booster-shot-for-those-over-60-who-received-pfizer-vaccination-ncid-study
- https://www.beritaharian.sg/setempat/penggalak-moderna-lebih-efektif-bagi-warga-emas-yang-diberi-vaksin-pfizer-kajian-ncid
- https://www.mediaportal.com/mp/playnow.aspx?u=150634&p=2083376894&key=532344154591451041591792422014611581806 7
- https://www.mediaportal.com/mp/playnow.aspx?u=150634&p=2083175755&key=532271589166431921336212343335155228 6
- https://www.nationthailand.com/international/40013511
- https://sg.news.yahoo.com/higher-protection-modern-booster-60-pfizer-ncid-144637057.html

- https://mustsharenews.com/moderna-more-effective-booster/
- https://www.straitstimes.com/singapore/health/moderna-more-effective-as-a-booster-shot-for-those-over-60-who-received-pfizer-vaccination-ncid-study

Health Impact (CY2022 publications)

1. Virological and serological kinetics of SARS-CoV-2 Delta variant vaccine breakthrough infections: a multicentre cohort study

    a) Paper was cited as part of the scientific opinion analysis by European Food Safety Authority(ESFA) tasked by European Centre for Disease Prevention and Control (An agency of the European Union). EFSA was asked to review the scientific literature related to animal species susceptible to SARS-CoV-2 infection that play a role in its epidemiology. An assessment of the current epidemiological situation and of the risk for human and animal health posed by SARS-CoV-2 infection in animal species of concern was also conducted, which should serve to recommend options for reviewing the monitoring strategies for SARS-CoV-2 infection in animal species of concern.

    b) Paper was cited as a working paper under Finnish Institute for Health and Welfare (THL, Finnish: Terveyden ja hyvinvoinnin laitos as part of an analysis to study the maintenance of vaccine protection against corona infection and severe coronavirus disease as well as the protection of people in risk groups aged over 70 and aged 16-69 against corona infection after the second vaccine dose and against the coronavirus disease requiring outpatient treatment in Finland THL is the biggest expert organisation under the ministry and its most important source of consultation regarding scientific knowledge.

    c) Paper was cited by the French Society of Hospital Hygiene (SF2H) on the protection of patients and professionals in the context of COVID-19 where the members of the Scientific Council of the SF2H proposed a set of useful measures for the protection of patients and professionals in health and medico-social establishments. These measures must be adapted to the particulars of the establishments and to the local situation of the epidemic. (Note: source is from Google Scholar)

        The SF2H society is composed of professionals working in the field of hygiene promotion in health care, to promote safety and quality of care, epidemiology, prevention and the fight against healthcare associated infections including nosocomial infections; safety and health awareness, evaluation, accreditation and risk management in the field of healthcare associated infections.

Policy citation link (Plum X Metrix):
https://plu.mx/plum/a/policy_citation?doi=10.1016/j.cmi.2021.11.010

2. Clinical and virological features of SARS-CoV-2 variants of concern: a retrospective cohort study comparing B.1.1.7 (Alpha), B.1.315 (Beta), and B.1.617.2 (Delta)

    a) Paper was cited by **World Health Organisation (WHO**) as part of COVID-19 Weekly Epidemiological Update to the public on COVID-19. WHO has based on the papers published

to focus on SARS-CoV-2 Variants of Interest and Variants of Concern. Recommendation to prevent the spread of COVID-19 pertaining to the new VOCs were then provided based on that. WHO, in collaboration with national authorities, institutions and researchers, routinely assesses if variants of SARS-CoV-2 alter transmission or disease characteristics, or impact vaccine, therapeutics, diagnostics or public health and social measures (PHSM) applied by national authorities to control disease spread. Systems have been established to detect signals of potential Variants of Concern (VOCs) or Variants of Interest (VOIs) and assess these based on the risk posed to global public health. As these risks evolve, WHO updates the list of global VOIs and VOCs (Table 2) to support setting priorities for surveillance and research, and ultimately guide response strategies.

b) Paper was cited in the COVID-19 Science Brief of **CDC**. COVID-19 Science Briefs provide a summary of the scientific evidence used to inform specific CDC guidance and recommendations. The Science Briefs reflect the scientific evidence, and CDC's understanding of it, on a specific topic at the time of the Brief's publication. 1) All COVID-19 vaccines currently approved or authorized in the United States 2) Available evidence suggests the currently approved or authorized COVID-19 vaccines are highly effective against hospitalization and death for a variety of strains 3)Limited available data suggest lower vaccine effectiveness against COVID-19 illness and hospitalization among immunocompromised people 4) The risk for SARS-CoV-2 infection in fully vaccinated people cannot be completely eliminated as long as there is continued community transmission of the virus.

Policy citation link (Plum X Metrix):
https://plu.mx/plum/a/policy_citation?doi=10.1093/cid/ciab721

(Collaborator Role)

3. Efficacy and safety of two neutralising monoclonal antibody therapies, sotrovimab and BRII-196 plus BRII-198, for adults hospitalised with COVID-19 (TICO): a randomised controlled trial
   a) Paper is cited as a guideline by **World Health Organisation (WHO)** for Therapeutics and COVID-19.

      This living guideline from the World Health Organization (WHO) incorporates new evidence to dynamically update recommendations for COVID-19 therapeutics.

Policy citation link (Plum X Metrix):
https://plu.mx/plum/a/policy_citation?doi=10.1016/S1473-3099(21)00751-9

4. Tixagevimab-cilgavimab for treatment of patients hospitalised with COVID-19: a randomised, double-blind, phase 3 trial
   a) Paper was cited by **Robert Koch Institute (RKI)** where the epidermiology report allows the **Standing Committee on Vaccination (STIKO) committee in RKI to provide recommendation for COVID-19 vaccination.** In specific, for age group 60-69 and people age 5 and over for another booster vaccination.

      The Standing Committee on Vaccination at the Robert Koch Institute is a scientific

committee comprising 18 members at the Robert Koch Institute in Berlin, Germany that provides official recommendations for the vaccination schedules used by the individual German states.

The Robert Koch Institute (RKI) is a German federal government agency and research institute responsible for disease control and prevention.

b) Paper was cited by Africa CDC as part of COVID-19 Scientific and Public Health Policy updates. The update is a weekly brief compiled with the latest developments in scientific knowledge and public health policy from around the world for use by Member States. These regular updates to ensure Member States are informed of the most critical developments in these areas.

Policy citation link (Plum X Metrix):
https://plu.mx/plum/a/policy_citation?doi=10.1016/S2213-2600(22)00215-6