

Alex R Cook

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Male

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Employment history

2018–now	Vice Dean (Research)	Saw Swee Hock School of Public Health, National University of Singapore and National University Health System
2018–now	Domain Leader	Biostatistics and Modelling Domain, Saw Swee Hock School of Public Health, National University of Singapore and National University Health System
2015–now	Associate Professor	Biostatistics and Modelling Domain, Saw Swee Hock School of Public Health, National University of Singapore and National University Health System
2015–now	Associate Professor	Department of Statistics and Applied Probability, National University of Singapore
2015–now	Associate Professor	Program in Health Services and Systems Research, Duke-NUS Graduate Medical School Singapore
2012–now	Visiting scientific consultant	Communicable Disease Centre, Tan Tock Seng Hospital, Singapore
2015–2016	Associate Professor	Science Division, Yale-NUS College, National University of Singapore
2013–2015	Assistant Professor	Science Division, Yale-NUS College, National University of Singapore
2011–2015	Assistant Professor	Biostatistics Domain, Infectious Disease Programme, and Centre for Infectious Disease Epidemiology and Research, Saw Swee Hock School of Public Health, National University of Singapore and National University Health System
2011–2015	Assistant Professor	Program in Health Services and Systems Research, Duke-NUS Graduate Medical School Singapore
2008–2015	Assistant Professor	Department of Statistics and Applied Probability, National University of Singapore
2007–2008	Visiting scholar	Department of Plant Science, University of Cambridge, UK
2005–2008	Post-doctoral Research Associate	Department of Actuarial Mathematics and Statistics, Heriot-Watt University, UK

Education

1998–2002	BSc (hons) 1st class in Statistics	Heriot-Watt University, Edinburgh, UK
2002–2005	PhD in Statistics	Degree issued by Heriot-Watt University for research conducted at Biomathematics and Statistics Scotland

Grants awarded

Role	Quantum	Funder	Period	Title of research
PI	\$326 964	HSR	2017–9	Optimising influenza vaccination uptake and timing among the elderly in Singapore: a modelling study
CoPI	\$7 000 000	NMRC	2017–21	Singapore Population HEalth ImpROvement Centre (SPHERiC)
Co-I	\$5 000 000	NMRC	2017–21	Collaborative Solutions Targeting Antimicrobial Resistance Threats in Health Systems (CoSTAR-HS)
PI	\$200 000	HSR	2017–9	Tuberculosis in the resident and migrant population in Singapore: a mixed-method study
PI	\$642 000	CDPHRG	2014–6	Impact and cost-effectiveness of respiratory disease pandemic intervention in Singapore
PI	\$200 000	HSR	2013–5	Risk factors and control of hand, foot and mouth disease in childcare centres in Singapore
PI	\$1 300 000	MinDef	2013–6	Project MODUS
PI	\$180 000	MOE tier 1	2013–6	Statistical methods for Seroepidemiological Studies
PI	\$109 000	NIHA, GAI, NUS	2009–11	Developing simulation-based parametrisation methods for models of sexually transmitted infection: making policy recommendations evidence-based
Co-I	\$426 000	NMRC H1N1	2010–2	Optimising local management of global pandemics -- a modeling approach
PI	\$180 000	NUS	2009–10	Start up grant
Co-I	\$180 000	MOE tier 1	2013–6	Formative research and pilot of intervention study for men-who-have-sex-with-men

Other funded projects

Funder	Period	Title and role
MinDef	2011–7	Centre for Infectious Disease Modelling and Research An academic member of CIDER. I lead most of the modelling and analytic work done by CIDER, in particular models of outbreaks in camps, of interventions, and analysis of respiratory pathogen data.
MOH	2011–	Population Health Metrics and Analytics I lead the modeling and analytic work of PHMA. We are forecasting diabetes and hypertension prevalence, modeling breast cancer screening, hospital admissions, and developing both temporal and spatial individual-based models of the population.
NEA	2012–	Determination of Risk Factors that Impact Dengue in Singapore and Development of a Predictive Model I advise the EHI biostatistics team on analytics.

Research team (past and present)

	Name	Role	Next destination (ex-lab members)
2010–12	Roman Carrasco	Postdoc	Assistant Professor, NUS
2012	Tan Chong Yew	RA	MD Program, Duke-NUS
2012	Elizabeth Chong	RA	Postdoc, Emory
2012–2013	Teo Tjun Kiat	RA*	Completing DPhil at Oxford

2013	Ho Peh Joo	RA	PhD programme at SSHSPH
2012–14	Jin Jing	RA*	RA, Tan Tock Seng Hospital
2014–15	Tarek Soliman	Postdoc	Economist, Manaaki Whenua Landcare Research, New Zealand
2012–15	Sourav Das	Postdoc	Postdoc, Bristol
2014	Ning Yilin	RA	RA, SSHSPH
2012–2015	Shi Yuan ¹	Postdoc	Postdoc, Singapore Eye Research Institute
2013–2015	Zheng Xiaohui	RA	Operations research, Port Services Authority
2015	Cindy Lim	RA	PhD programme at SSHSPH
2015	Gao Zheng	RA	PhD programme at Michigan
2014–2015	Nguyen Thi	Postdoc	Set up business, Australia
2014–2016	Joel Koo	RA	PhD programme, maths, NUS
2015–2016	Hanh La	Postdoc	Senior Lecturer, SSHSPH
2015–2016	Jason Yin ²	RA	RA, Yoong lab, SSHSPH
2012–2016	Lilac Liu ¹	RA	(Travelling the world!)
2013–2016	Gibson Gay ²	RA	Analyst, Biomedical tech company
2012–2016	Kristin Tan ²	RA	Health economist, pharma company
2016	Jenny Yang Jie	Postdoc	Assistant Professor, University of Nottingham
2012–2016	Zhao Xiahong	RA	Biostatistician, Kantar Health
2012–2016	Phan Phuong Thao	RA*	Biostatistician, MOH New South Wales
2014–2017	Soh Kee Pang	RA*	Buddhist monk
2014–2017	Arun Gunachandran	RA	Research associate at SSHSPH
2015–2017	Chao Fengqing	RA	Postdoc, Lee Kuan Yew School of Public Policy, NUS
2013–2017	Pang Long	RA	Research assistant at SSHSPH
2016–2017	Foo Jie Ming ²	RA	MPH programme at Aberdeen Robert Gordon
2013–now	Chen Yirong	RA	Biostatistician, Kantar Health
2014–now	Kiesha Prem	RA	
2014–now	Alex 'Junior' Soh	RA	
2015–now	Tan Ken Wei	RA*	
2016–now	Hong Yueheng ²	RA	
2017–now	Yue Mu	Postdoc	
2018–now	Bo Dickens	Postdoc	
2018–now	Mao Yinan	RA	
2018–now	Sun Haoyang	RA	
2018–now	Lean Yinai	RA	
2018–now	Yang Qianyu	RA	

RA: Research assistant; RA*: Research Associate
1: EHI staff; 2: co-supervised with Lim Wei-Yen or Rob van Dam

Students supervised

Year	Student	Degree	Thesis/project title
2008–9	Zheng Xiaohui	HYP	Hierarchical modelling of epidemic outbreaks

	Lee Huey Chyi	HYP	The use of particle filters for infectious disease inference
	Joseph Lee	HYP	Inference for stochastic epidemic models using moment closure approximations
2009–10	Cindy Lim	HYP	Modelling Within Host Viral Loads of Infectious Diseases
	Leong Shi Ern	HYP	Bringing Snow to Zimbabwe
2010–1	Shanice Teo	HYP	The communicability of graphical alternatives to tabular displays of simulation studies
	Abigail Tan	HYP	Does adding a hidden Markov state improve the short term predictive ability of autoregressive models of dengue in Singapore?
	Tan Yin Ren	HYP	Analysis of the association between historical influenza outbreaks and climatic factors in Singapore
	Ng Wei Ting	HYP	Optimal design of studies of infectious disease intervention efficacy
2011–2	Kristin Tan	HYP	Optimising breast cancer screening programmes in Singapore
	Zhao Xiahong	HYP	A weather driven model of the life cycle of Aedes aegypti in Singapore
	Marie Ong	HYP	Optimal control of hand, foot and mouth disease in pre-school centres in Singapore
2012–3	Ben Ten	HYP	Developing A Daily Dengue Haemorrhagic Fever Calculator
	Yeo Zhi Lin	HYP	Personalising Empiric Antibiotic Recommendations for Sepsis
2013	Ow-Yang Zhi Jun	HYP	How do different graphical formats influence perception of differences between groups?
2013–4	Kiesha Prem	HYP	Quantifying the Contribution of Socio-Demographics and Contact Patterns to Reproductive Numbers and Transmission
	Li Mo	HYP	Where Do Men Who Have Sex With Men Meet Other Men Who Have Sex With Men?
	Penny Goh	HYP	Improving the Information Content of Influenza Seroepidemiological Studies
	Ning Yilin	HYP	Evolution of Influenza Antibodies
	Zhang Ruirui	HYP	The HIV Cascade of Care in Singapore: Where Does Dropout Occur?
2014–5	Jewel Low	HYP	Long Term Effects of Preschool Closure During Hand, Foot and Mouth Disease Outbreaks: A Modelling Study
	Collins Chu	HYP	Pan-Asian Infectious Disease Forecasting with LASSO
2015–6	Juliana ZY Ng	HYP	Difference in Quality of Care across Ward Classes
	Foo Jie Min	HYP	Modelling Environmental Performance Indicators
	Ang Yukai	RM	Computer simulation to assess the feasibility of a randomised clinical trial on prophylactic contralateral mastectomy
	Namrata Hange	MPH	Intervention based office ergonomics project in SSHSPH office workers
2016–7	Andy Ng	HYP	Estimating Spatial Location and Paths using Portable and Geo-referenced RFID tags
	Samuel Kok	HYP	Developing an Algorithm to Detect Potential Outbreaks of Gastro-Intestinal Disease (GID) in SAF

	Chong Woon Han	RM	Nutritional Epidemiology and Health Economics
	Lim Chu Hsien	RM	Nutritional Epidemiology and Health Economics
	Xie Yihao	CPS	Constructing a Model for Mosquito Abundance in HDB Estates in Singapore Using Meteorological, Environmental and Socioeconomic Predictors
	Terrence Wong	MPH	Acceptance of dengue vaccines among adults to control dengue transmission
2017–8	Tiew Jia Ling	HYP	A simulation study of the population-level effects of interventions for hepatitis C infection
	Lin Zhijia	HYP	Bayesian Methods for Network Scale Up Approaches to estimate Hidden Population Sizes
	Sharon ED Quaye	CPS	TBD
	Mythili Nagaratnam	MPH	Lived experiences, barriers and facilitators in coping with diabetes among women in the low and middle socioeconomic group in Chennai, India: a qualitative study
	Pream Raj s/o Sinnasamy	MPH	Estimating the prevalence of hepatitis C among intravenous drug users and the size of this hidden population using a one-step capture-recapture method in Singapore
	Pek Pin Pin	MPH	Bystander interventions among out-of-hospital cardiac arrests before and after implementation of a residential public access defibrillation program
	Karthikayen s/o Jayasundar	MPH	A population-level study regarding health information seeking behaviour and factors affecting uptake of the influenza and dengue vaccines
2008–9	Anandhi Raveendran	MSc	Optimal design of Markov chain Monte Carlo sampling routines
2009–14	Zheng Xiaohui	PhD	Hierarchical modelling for infectious diseases
2010–15	Teo Guo Ci	PhD	Estimation of large-scale cross-covariance matrix with group information
2009–10	Lee Huey Chyi	MSc	Evaluation of real-time methods for epidemic forecasting
2013–14	Cyrille Brun	MSc	Modeling deforestation in Indonesia
2015–17	Chao Fengqing	PhD	Bayesian methods for estimating global health indicators
2013–18	Koh Wee Ming	PhD	The epidemiology and control of hand, foot and mouth disease
2014–18	Zhao Xiahong	PhD	Statistical modelling of upper respiratory tract infections
2014–	Chen Yirong	PhD	
2015–	Kiesha Prem	PhD	
2015–	Cindy Lim	PhD	
2017–	Tan Ken Wei	PhD	
2018–	Sun Haoyang	PhD	
2018–	Mao Yinan	PhD	

HYP = honour year project, for bachelor of science with honours. CPS = Capstone project, and RM = research module, both for bachelor of science or arts with honours at Yale-NUS. MPH = masters in public health practicum project.

Publication list

1. Chen Y, Chong CY, Cook AR, Sim NTW, Horby P, La HH. Temporal relationship between occurrences of hand, foot and mouth disease, respiratory virus detection and febrile seizures in children in tropical Singapore: a time-series analysis. *Epidemiol Infect* [Internet]. To appear [cited 2018 Oct 7]; Available from: <https://doi.org/10.1017/S0950268818002509>
2. Dickens BL, Sun H, Jit M, Cook AR, Carrasco LR. Determining environmental and anthropogenic factors which explain the global distribution of *Aedes aegypti* and *Ae. albopictus*. *BMJ Glob Health*. 2018 Sep 1;3(4):e000801.
3. Yan G, Pang L, Cook AR, Ho HJ, Win MS, Khoo AL, et al. Distinguishing Zika and Dengue Viruses through Simple Clinical Assessment, Singapore. *Emerg Infect Dis*. 2018 Aug;24(8):1565–8.
4. Chen Y, Ong JHY, Rajarethinam J, Yap G, Ng LC, Cook AR. Neighbourhood level real-time forecasting of dengue cases in tropical urban Singapore. *BMC Med*. 2018 Aug 6;16(1):129.
5. Cook AR, Zhao X, Chen MIC, Finkelstein EA. Public preferences for interventions to prevent emerging infectious disease threats: a discrete choice experiment. *BMJ Open*. 2018 Feb 1;8(2):e017355.
6. Ong J, Liu X, Rajarethinam J, Kok SY, Liang S, Tang CS, et al. Mapping dengue risk in Singapore using Random Forest. *PLoS Negl Trop Dis*. 2018 Jun 18;12(6):e0006587.
7. Seng M, Wee LE, Zhao X, Cook AR, Chia SE, Lee VJ. Comfort and exertion while using filtering facepiece respirators with exhalation valve and an active venting system among male military personnel. *Singapore Med J*. 2018 Jun;59(6):327–34.
8. Koh WM, Badaruddin H, La H, Chen MI-C, Cook AR. Severity and burden of hand, foot and mouth disease in Asia: a modelling study. *BMJ Glob Health*. 2018 Jan 1;3(1):e000442.
9. Choi E, Cook AR, Chandran NS. Hidradenitis Suppurativa: An Asian Perspective from a Singaporean Institute. *Skin Appendage Disord* [Internet]. 2018 Jan 26 [cited 2018 Feb 26];(0). Available from: <http://www.karger.com/Article/FullText/481836>
10. Chen Y, Chu CW, Chen MIC, Cook AR. The utility of LASSO-based models for real time forecasts of endemic infectious diseases: a cross country comparison. *J Biomed Inform*. 2018 Feb 27;81:16–30.
11. Ho PJ, Hartman M, Gernaat SAM, Cook AR, Lee SC, Hupkens L, et al. Associations between workability and patient-reported physical, psychological and social outcomes in breast cancer survivors: a cross-sectional study. *Support Care Cancer*. 2018 Mar 6;1–10.
12. Pang L, Harris PNA, Seiler RL, Ooi PL, Cutter J, Goh KT, et al. Melioidosis, Singapore, 2003–2014. *Emerg Infect Dis*. 2018 Jan;24(1):140–3.
13. Ho ZJM, Chee CBE, Ong RT-H, Sng LH, Peh WLJ, Cook AR, et al. Investigation of a cluster of multi-drug resistant tuberculosis in a high-rise apartment block in Singapore. *Int J Infect Dis*. 2017 Dec 15;67:46–51.

14. Jiang L, Ng HL, Ho HJ, Leo YS, Prem K, Cook AR, et al. Contacts of healthcare workers, patients and visitors in general wards in Singapore. *Epidemiol Infect.* 2017 Oct;145(14):3085–95.
15. Cook AR, Hartman M, Luo N, Sng J, Fong NP, Lim WY, et al. Using peer review to distribute group work marks equitably between medical students. *BMC Med Educ.* 2017 Sep 20;17:172.
16. Prem K, Cook AR, Jit M. Projecting social contact matrices in 152 countries using contact surveys and demographic data. *PLOS Comput Biol.* 2017 Sep 12;13(9):e1005697.
17. Zhao X, Ning Y, Chen MI-C, Cook AR. Individual and population trajectories of influenza antibody titers over multiple seasons in tropical Singapore. *Am J Epidemiol.* 2018 Jan 1;187(1):135–43.
18. Ho ZJM, Hapuarachchi HC, Barkham T, Chow A, Ng LC, Lee JMV, et al. Outbreak of Zika virus infection in Singapore: an epidemiological, entomological, virological, and clinical analysis. *Lancet Infect Dis* [Internet]. 2017 May 17 [cited 2017 Jun 22];0(0). Available from: [http://www.thelancet.com/journals/laninf/article/PIIS1473-3099\(17\)30249-9/abstract](http://www.thelancet.com/journals/laninf/article/PIIS1473-3099(17)30249-9/abstract)
19. Zhao X, Siegel K, Chen MI, Cook AR. Rethinking thresholds for serological evidence of influenza virus infection. *Influenza Other Respir Viruses.* 2017;11(03):202–10.
20. Siegel K, Cook AR, La H. The impact of hand, foot and mouth disease control policies in Singapore: A qualitative analysis of public perceptions. *J Public Health Policy.* 2017;38(2):271–87.
21. Das S, Cook AR, Wah W, Win KMK, Chee CBE, Wang YT, et al. Spatial dynamics of TB within a highly urbanised Asian metropolis using point patterns. *Sci Rep.* 2017;7(1):36.
22. Young B, Zhao X, Cook AR, Parry CM, Wilder-Smith A, I-Cheng MC. Do antibody responses to the influenza vaccine persist year-round in the elderly? A systematic review and meta-analysis. *Vaccine.* 2017 Jan 5;35(2):212–21.
23. Wardell R, Prem K, Cowling BJ, Cook AR. The role of symptomatic presentation in influenza A transmission risk. *Epidemiol Infect.* 2017 Mar;145(4):723–7.
24. Larson HJ, de Figueiredo A, Xiahong Z, Schulz WS, Verger P, Johnston IG, et al. The State of Vaccine Confidence 2016: Global Insights Through a 67-Country Survey. *EBioMedicine.* 2016 Oct;12:295–301.
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26. Koh WM, Bogich T, Siegel K, Jin J, Chong EY, Tan CY, et al. The Epidemiology of Hand, Foot and Mouth Disease in Asia: A Systematic Review and Analysis. *Pediatr Infect Dis J.* 2016 Jun 3;
27. Dickens BL, Yang J, Cook AR, Carrasco LR. Time to empower RIDL and Wolbachia against Zika. *Open Forum Infect Dis.* 2016;ofw103.
28. Fisher D, Pang L, Salmon S, Lin RTP, Teo C, Tambyah P, et al. A Successful Vancomycin-Resistant Enterococci Reduction Bundle at a Singapore Hospital. *Infect Control Hosp Epidemiol.* 2016 Jan;37(01):107–109.

29. Shi Y, Liu X, Kok S-Y, Rajarethinam J, Liang S, Yap G, et al. Three-Month Real-Time Dengue Forecast Models: An Early Warning System for Outbreak Alerts and Policy Decision Support in Singapore. *Environ Health Perspect* [Internet]. 2015 Dec 11 [cited 2016 Feb 24]; Available from: <http://ehp.niehs.nih.gov/15-09981>
30. Chen Y, Cook AR, Lim AX. Randomness of Dengue Outbreaks on the Equator. *Emerg Infect Dis*. 2015;21(9):1651–1653.
31. Jiang L, Lee VJ, Lim WY, Chen MI, Chen Y, Tan L, et al. Performance of case definitions for influenza surveillance. *Euro Surveill*. 2015;20(22):21145.
32. Lau MS, Cowling BJ, Cook AR, Riley S. Inferring influenza dynamics and control in households. *Proc Natl Acad Sci*. 2015;112(29):9094–9099.
33. Lim RBT, Wong ML, Cook AR, Brun C, Chan RK, Sen P, et al. Determinants of Chlamydia, Gonorrhoea, and Coinfection in Heterosexual Adolescents Attending the National Public Sexually Transmitted Infection Clinic in Singapore. *Sex Transm Dis*. 2015;42(8):450–456.
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95. Gibson G, Otten W, Filipe JA, Cook A, Marion G, Gilligan CA. Bayesian estimation for percolation models of disease spread in plant populations. *Stat Comput.* 2006;16(4):391–402.
96. Krishnarajah I, Cook A, Marion G, Gibson G. Novel moment closure approximations in stochastic epidemics. *Bull Math Biol.* 2005;67(4):855–73.

Media coverage

Year	Article
2009	Sunday Times On our realtime, online influenza forecast
2010	Straits Times, My Paper, Lianhe Zaobao On our NEJM paper on antiviral ring prophylaxis
2011	Reuters, Agence France-Presse, and 20 000 news outlets including USA Today, Times of India, Sky News and France 24 On our J Roy Soc Interface article on the affordability of influenza antivirals
2012	Straits Times, Lianhe Zaobao, Today Articles on our diabetes forecasts presented at the First Singapore International Conference on Public Health
2013	New Scientist Op Ed written by Carrasco, Coker and myself, on our DALY market proposal for global health
2014	Lianhe Zaobao Article on the dengue forecast created by myself and the team and the Environmental Health Institute
2015	Today Article on our research on TB incidence attributes the rise to ageing population (true), more foreigners (false)
2016	It Figures, Channel News Asia TV episode on 'sugar high'
2016	Straits Times Op Ed on the zika outbreak: Need for mosquito control and public health education
2018	Straits Times Study on public acceptance of steps to curb outbreaks

Teaching

AY	Sem	Class	CH/E	Enrollment
2008/9	1	ST3242 Introduction to Survival Analysis	50	25
2008/9	2	ST2238 Introductory Biostatistics	50	32
2009/10	1	ST2238 Introductory Biostatistics	50	358
2009/10	2	Freshman seminar: Game theory	26	14
2009/10	2	Freshman seminar: Randomness in scientific thinking	26	15
2010/1	1	ST5219 Bayesian Hierarchical Modelling	39	39
2010/1	2	ST3242 Introduction to Survival Analysis	50	22
2011/2	1	Freshman seminar: Good science, junk science and statistics	26	15
2011/2	1	Freshman seminar: Randomness in scientific thinking	26	15
2011/2	2	Statistics co-advisor: two community health projects	24	~80
2012/3	1	Bayesian Statistics	61	33
2012/3	2	Advanced Biostatistics	14	5
2012/3	2	Statistics advisor: community health project	12	~40
2012/3	2	BL5233: Modelling in environmental biology with R	2	23
2013/4	1	Biostatistics for Public Health	16	8

2013/4	1	Public Health in Action (co-facilitator)	*	140
2013/4	2	Advanced Biostatistics	14	6
2013/4	2	Quantitative Reasoning (co-teaching a double section)	60	38
2013/4	2	HIV/AIDS: from microbes to nations	2	19
2014/5	1	Public Health in Action	6	400
2014/5	2	Advanced Biostatistics	14	5
2014/5	2	Public Health in Action	6	400
2014/5	2	Statistical Inference	52	3
2015/6	1	Public Health in Action	6	~400
2015/6	1	Quantitative Epidemiologic Methods	16	55
2015/6	2	Public Health in Action	12	~400
2015/6	2	Advanced Biostatistics	12	10
2015/6	2	Statistical Inference	52	2
2015/6	2	Experimental Design and Statistics	24	17
2016/7	1	Quantitative Epidemiologic Methods	16	~60
2016/7	1	Public Health in Action	15	~600
2016/7	2	Main supervisor: community health project	50	35
2017/8	1	Public Health Research Methods	16	~100
2017/8	1	Public Health in Action	15	~600
2017/8	2	Main supervisor: community health project	50	35
2017/8	2	Advanced Biostatistics	14	~10

CH/E: contact hours or equivalent. * no natural contact hour equivalent: in class for 39h.

Teaching awards

Year	Award
2009	Faculty (of Science) Teaching Excellence Award, NUS
2011	Faculty (of Science) Teaching Excellence Award, NUS
2013	Inspiring Research Mentor Award, NUS High School of Mathematics and Science
2014	Faculty (Saw Swee Hock School of Public Health) Teaching Excellence Award, NUS
2014	Annual Teaching Excellence Award, NUS