

Twitter Thread by Barney Scholefield ■



Barney Scholefield ■

@BarneyUoB



2020 has been extraordinary.

But we wanted to share the 10 reasons we are proud of 2020 by the S-Lab research group of @PICU_BCH & @BacrUob @unibirmingham

AND to say a HUGE 'thank you' to everyone who has made this possible
#teamscience #PedsICU #2020






1) In the last 12 months we have built up a team of Neuro-critical care, resuscitation science, early rehabilitation and COVID19/PIMS-TS researchers for in Birmingham to improve the lives of critically unwell children. Currently called the S(cholefield)-Lab pending a better name!



2) In 2020 we watched our early career researchers shine




Hussin Albargi @AlBaRqi14 (PhD student: paediatric prehospital cardiac arrest)


Mirjam Kool @mirjam_kool (ACF – post-arrest #TTM Intra-arrest physiological monitoring @ILCOR) & 1st publication!
<https://t.co/9PIOYh8hub>

Impact of bystander cardiopulmonary resuscitation for paediatric out-of-hospital cardiac arrest in England

H Albargi, S Mallett, S. Booth, C Hawkes, G D Perkins, B Scholefield



- c. Rosie Watts (Med student - BACC-PACK audit of #TTM @PICU_BCH and our need to improve quality of #TTM).
- d. Trystan Gruffydd @TrystanGruffydd (BMedSci student – GCS prognostication post-TBI @ISPNeurosurgery). & many more stars of the future

Rosanna Watts¹, Dr Hari Krishnan Kanthimathinathan², Sophie Dance², Sarah Fox², Kate Penny-Thomas², Dr Barney Scholefield^{2,3}

¹ School of Medicine and Dentistry, University of Birmingham; ² Paediatric Intensive Care, Birmingham Women and Children's Hospital, Birmingham; ³ Birmingham Acute Care Research Group, Institute of Inflammation and Ageing, University of Birmingham

Background

International guidelines recommend Targeted Temperature Management (TTM) as part of paediatric post cardiac arrest (CA) management on Paediatric Intensive Care (PICU).

Birmingham Children's Hospital (BCH) PICU post-CA guideline recommends active TTM at 36-36.5°C for at least 72 hours, with the aim of strict avoidance of fever ($\geq 38^{\circ}\text{C}$).

We audited:

1. Compliance with BCH-specific TTM (36-36.5°C) & active TTM (any 32-37.5°C).
2. Rate of fever ($\geq 38^{\circ}\text{C}$)
3. Factors associated with TTM.

Methods

Single centre, prospective study of post-CA patients admitted to PICU between 12/2016 & 04/2019 as part of study [REC: 16/WM0314].

Included:

- Patients aged >24 hours - 16 yrs
- >1 minute CPR
- ≥ 24 hours of temperature data

Data on three successive 24-hour time periods post-CA were reviewed.

- Clinician specified TTM target or no active TTM
- Minimum and maximum core temperature

Results

1. Fifty eight patients met inclusion criteria [Table 1].

- None had TTM between 32-34.9°C.
- Active TTM (35-37.5°C) was used in 31/58 (53%) at 0-24 hours, 27/50 (54%) at 24-48 hours and 20/46 (43%) at 48-72 hours.
- 26/58 (45%) patients had no active TTM at any point in the first 72 hours.

Compliance with BCH-specific TTM (36-36.5°C) was only 15/58 (26%), 12/50 (24%) and 6/46 (13%) at 0-24, 24-48 and 48-72 hours respectively.

2. There were 21 instances of fever in 14/58 (24%) patients. Exposure to fever was higher in the 24-48 hour period post-CA in patients with no active TTM (5/20; 25%) compared to those with active TTM (1/30; 3%) ($p=0.03$).

3. Patients who had active TTM appeared to be at higher risk of poor prognosis, but no difference in rates of survival and good outcome [Table 1].

Conclusions

- Only half of patients post-CA received any active TTM, with low compliance to BCH-specific TTM (36-36.5°C) target.
- Fever occurred in 24% of patients.
- Active TTM may reduce fever exposure 24-48 hours post-CA.
- Education, re-audit and clearer guidance may improve active TTM use.

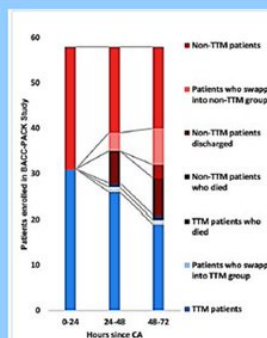


Figure 1: Temperature management in first 72 hours post-cardiac arrest

Table 1: Characteristics and outcomes of BACC-PACK patients

Characteristics and outcome measures	All patients	Active TTM in 1 st 24 h	No TTM in 1 st 24 h
Age - median (IQR) in months	3.7 (1.4-26.3)	5.1 (2.1-36.2)	3.0 (1.2-16.5)
Sex - Male n (%)	33/58 (57%)	17/31 (55%)	16/27 (59%)
In-hospital (non-PICU) cardiac arrest (IHCA)	27/58 (47%)	10/31 (32%)	17/27 (63%)
In-PICU cardiac arrest (PIHCA)	18/58 (31%)	12/31 (39%)	6/27 (22%)
Out-of-hospital cardiac arrest (OHCA)	13/58 (22%)	9/31 (29%)	4/27 (15%)
Duration of cardiac arrest - median (IQR) min	10 (5-25)	17 (6-48)*	9 (6-16)*
Number of Adrenaline doses - median (IQR)	2 (1-4.5)	4 (2-11)	2 (1-3)
Shockable rhythm n (%)	13/53 (25%)	9/29 (31%)	4/24 (17%)
Significant co-morbidities n (%)	41/58 (71%)	21/31 (71%)	19/27 (70%)
Congenital heart disease n (%)	34/58 (59%)	18/31 (58%)	16/27 (59%)
Lowest pH - median (IQR)	7.0 (6.74-7.22)	6.9 (6.51-7.22)	7.02 (6.90-7.17)
Highest lactate - median (IQR)	9.99 (6.40-13.8)	10.2 (6.15-15.7)	9.95 (8.70-11.4)
% probability of death - PIMS score - median (IQR)	26.2 (14.4-49.2)	26.8 (14.7-49.3)	35.6 (8.15-51.5)
Survival to PICU discharge n (%)	39/58 (67%)	22/31 (71%)	17/27 (63%)
Good outcome (GOS-EP = 1-4) at 3 months n (%)	29/55 (47%)	16/30 (53%)	13/25 (52%)

* denotes $p < 0.05$ (also highlighted in bold)

§ - PIMS not analysed for PIHCA patients

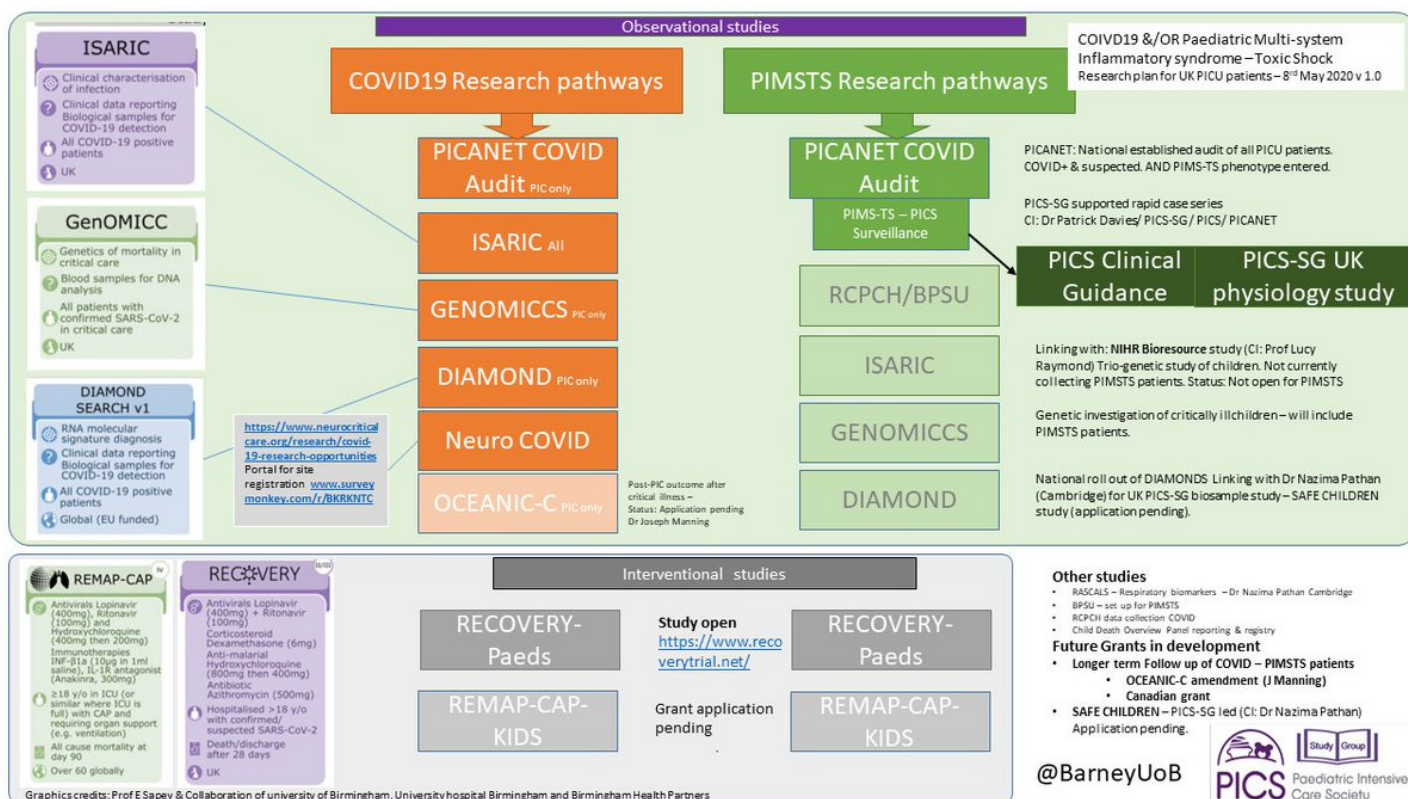
Funded by charitable grant from BWCH Research Foundation

@PICU_BCH

3) We fought with the world against #COVID19

Helped co-ordinate UK @PICSociety involvement in #NIHR & UK #COVID19 / #PIMSTS research. Local PIs to @GenomiccStudy @RecoveryICU

<https://t.co/XfdUtytsql>



Ground breaking #SARSCOV2 antibody research with [@unibirmingham](#) [@AlexRichter3](#) Graham Taylor [@ImmunologyUoB](#) et al <https://t.co/mrHD4hHwCu>

Chaired #PIMSTS [@BWC_NHS](#) MDT research group – awesome commitment and dedication from the whole paediatric acute care research team!

Discovered cardiac presentations in #PIMSTS <https://t.co/gjmneevgsb>

Collaborated in #COVID19 guidance for [@ESPNIC](#) and shared with colleagues in India, USA and wider world via multiple [@PICSociety](#) webinars and [@JohnsHopkins](#) <https://t.co/sbS88ut9TD>

<https://t.co/SraMJi0BP6>

Pushed for UK wide [@PICSociety](#) #pedsicu research in to #pimsts epidemiology and treatment with [@PicPod_Podcast](#) [@pic_pram](#) et al
<https://t.co/OYJ7ydX35N>

<https://t.co/6HxD9zl8rQ>

[@Dr_Hari_Krishna](#) Leads the UK [@PICSociety](#) #PICSSG paediatric consortium for #GCSNeuroCOVID with the brilliant [@ericka_fink](#)
<https://t.co/CM5sIPOQQC>

and of course are still trying to help get urgent funds for for more #covid19 #pimsts research for children. Thank you!!
[@actionmedres](#) #PedsICU

<https://t.co/UJkjKtu269>

4) Shared, improved & explored #pedsicu neuro-monitoring #neuropicu

[@RowberryTracey](#) Leads the [@ESPNIC_Society](#) #Whatseizure? EU wide exploring of #qEEG #aEEG practice - still time left to reply!

Shared implementation of bedside #qEEG monitoring [@PICU_BCH](#) <https://t.co/KEfgJU8yeb>



Please could you complete (and reshare in your country) our ESPNIC survey on EEG/qEEG monitoring in your hospital!

Thanks Barney & Tracey
On behalf of Neurosection of ESPNIC
@BarneyUoB
 (Its relevant to Europe AND beyond!)

<https://www.surveymonkey.co.uk/r/L5P5G5T>



Created new and exciting international #qEEG links with [@ESPNIC_Society](#) #neurosection [@AlexisTopjian](#) [@DrSaptharishi](#) et al!

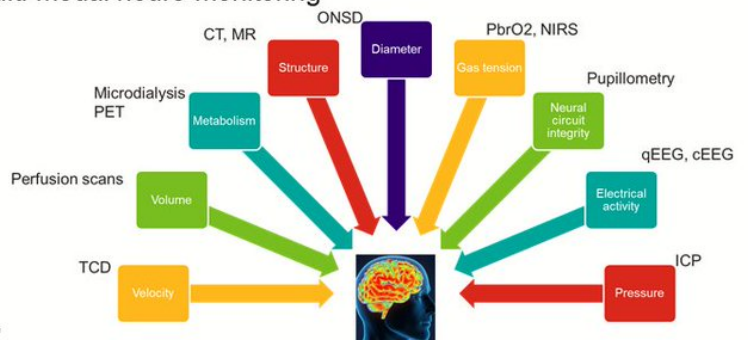
[@WillMcDevitt1](#) & [@bch_neurophys](#) questioned the role of SSEPs in #postarrestcareinkids <https://t.co/a6XsX6AaiU>

[@Dr_Hari_Krishna](#) continues to push the complex boundaries of multi-modal monitoring and big data analysis in paediatric #TBI and other brain injury

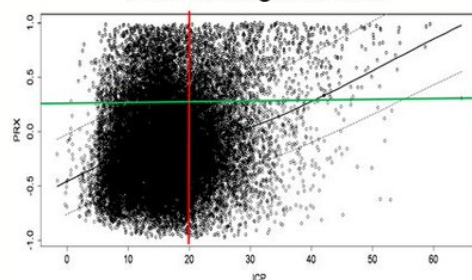
Monitoring - 1

- ☐ Traumatic Brain Injury
- ☐ Post cardiac arrest
- ☐ Real-time clinical data
- ☐ Collaboration with Kids-BRAIN-IT, Starship international studies

Multi-modal neuro-monitoring



PRx Birmingham data



Patterns of intracranial pressure and pressure-reactivity index in children with severe traumatic brain injury
 Kanthimathinathan et al.,
 WFPICCS 2018
 Pediatric Critical Care Medicine
 June 2018 19(65):19
 DOI:
 10.1097/01.pcc.0000537387.38074.83



Dr Hari Krishnan



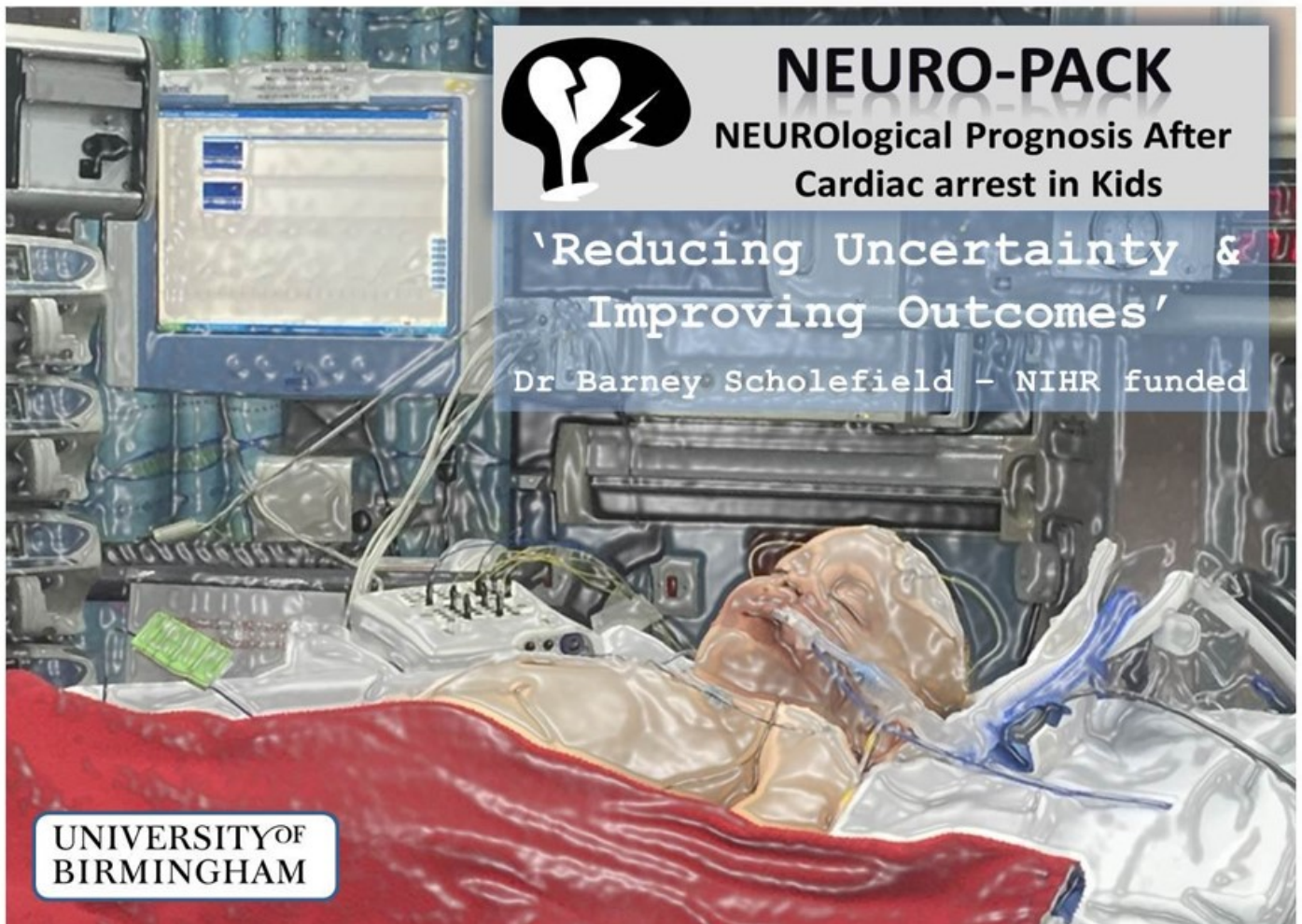
BACR Birmingham Acute Care Research

5) Resuscitation science takes off

#NEUROPACK nearly complete! Prognostic uncertainty in #PostArrestCareinKids <https://t.co/9ss0Rs5mbh>

#PREPACK study with @WarwickCTU exploring the impact of bystander CPR

#NAP7 @NAPs_RCoA CA during critical care transport, with @jas_soar



& S-Lab have supported the big year of @Ilcor_org COSTR resuscitation evidence reviews, @ResusCouncilUK and @ERC_resus guideline development. Essential to keep the focus on children's resuscitation science!

<https://t.co/9W74FsusH8>

6) Its been the year of PERMIT(ing) Early Rehabilitation and Mobilisation in UK #pedsicu

Delivered @NIHRresearch funded @PermitStudy multicentre 14 site prospective study, feasibility assessment, PERMIT intervention development and now ready for Phase 3 in 2021 & publications++



PERMIT UK Survey of Health Professional

Who took part?

n=124 from 26 UK PICUs
Nurses, Physios, Doctors,
Occupational therapist, Speech
& Language, Play therapists

What is ERM?

Individualised, multi-disciplinary
rehabilitation packages, activity
focused: promoting recovery

41%
Always or often
deliver ERM

Who gets
ERM?

Everyone (but older more),
Longer on PIC (>28 days),
↑ Acquired brain injury
Developmental delay

'E'RM Early?

Difficult to define
'As early as condition
allows'
'Individualised'
'Day 3'
'When ready'
'Earlier'

What outcomes are
important?



1. Get out of PICU quicker
2. Reduce the psychological
impact of PICU...

Barriers to
ERM



- insufficient **resources** and **equipment**,
funding, limited **staffing**
- lack of recognition of patient readiness,
- patient suitability,
- inadequate **training**,
- lack of **prioritisation** of ERM,
- **physiological instability** and sedation

What's needed?

PROTOCOL

as only 19% PICUs have one



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MEDICAL AND
DENTAL SCIENCES

Thompson et al (in press)

& none of which would have happened without a huge team working with us from B'ham, around the UK (and world!) - especially our brilliant [@PICU_BCHres](#) team (a pre-covid photo memory!)



7) We embraced [@zoom_us](#) (and many friends virtually!)
Travelled the virtual [#pedsicu](#) world to share S-Labs work [@EAPSCongress](#) [@ERC_resus](#) [@llcor_org](#) [@PICSociety](#)
[@icurehab](#) [@WFPICCS](#) [#pedsicu](#) [#icurehab](#) conferences
Exploded twitter with [#BCHNEURO20](#) x2 talks DM to [@drzaf_pic!](#)



PICU Journal Watch #PedsICU @PICJournalWatch · Dec 8

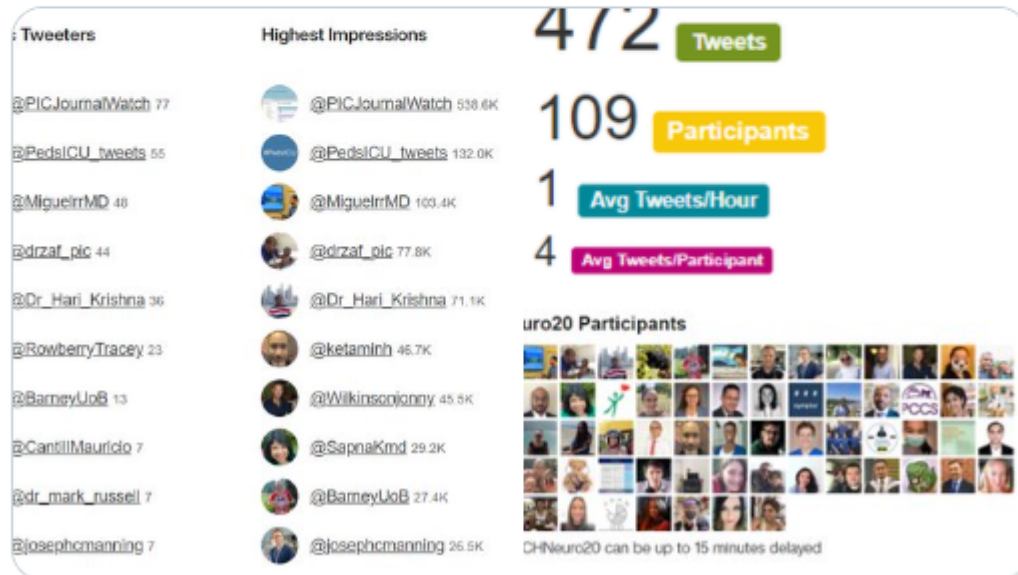
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Prepare to be amazed
#BCHneuro20 #PedsICU on twitter
> 1 million impressions !

Thanks to speakers @ela_chak @williamblo @MiguelrrMD @Child_hannah17
@ericka_fink @michell38807615 @MattKirschen #Shakti[not on twitter]

& @drzaf_pic @BarneyUoB @RowberryTracey

CC: @DrSeanBarnes



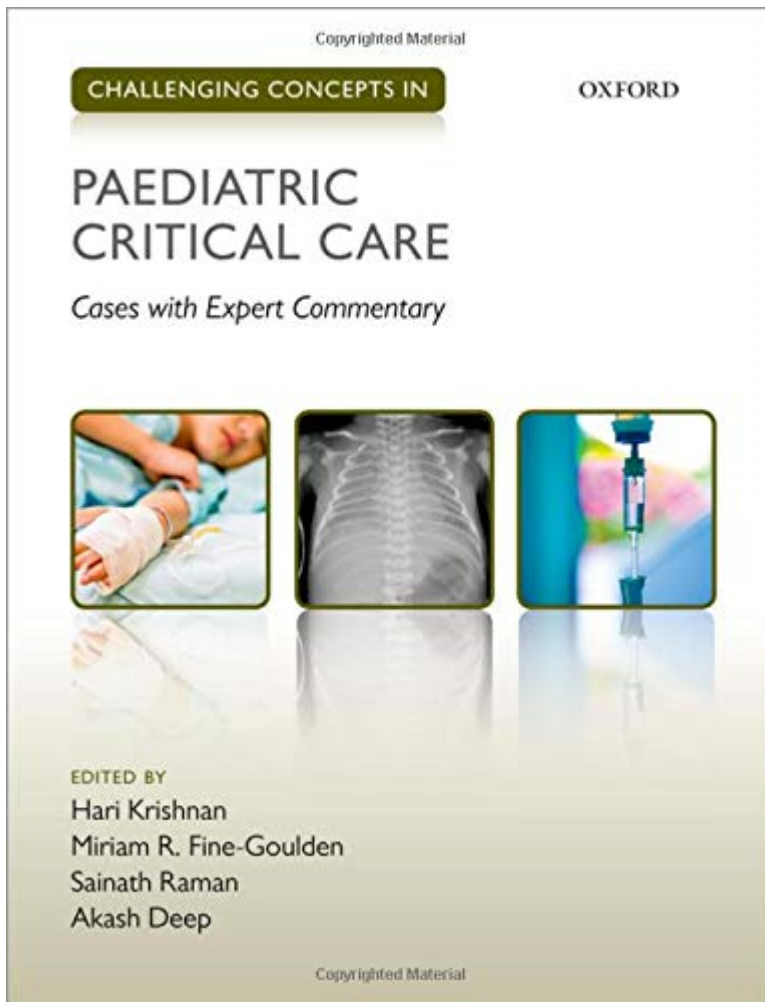
& Provided a virtual support network (hug) for @PICU_BCH during #COVID19 on the #9:09 daily support meeting

<https://t.co/1SkxkuiXuT>



8) We saw some true 'labour of loves' come to fruition for [@Dr_Hari_Krishna](#) and his hard workers : [@finegoulden](#)
[@aakashdeeparora](#) [@PicPod_Podcast](#)

A brilliant #pedsicu book, and an invaluable (free!) app <https://t.co/sN1fYkCseq>
<https://t.co/p0SOAGy4qW>



9) We sadly remembered our fallen friends and inspirational colleagues
#COVID19 #vaccinate #NeverForgotten

<https://t.co/ULIramDIF6>

10) Finally, if papers are the currency of #academictwitter then we finish by proudly paying our part, thanking for the hours put in by #editors #peerreviewers #colleagues #friends! eg [@RobertCTasker](#) ■
and share with you the S-Lab group publication list

<https://t.co/IMWQJDY1Gu>



2020 was an extraordinary year. For many 1 to forget. But we hope you don't mind us sharing why S-Lab group will take 2020 as a start onwards to something even better in 2021.

Collaborations always welcome! [@BarneyUoB](#)

Keep safe all & #BeKind

Credits: [@charliemackesy](#)



[@threadreaderapp](#) unroll