

Recovery and Learning: The role of research

Helen Snooks

Professor of Health Services Research
Swansea University Medical School

Associate Director

PRIME Centre Wales



Canolfan PRIME **Cymru**
PRIME Centre **Wales**



Ariennir gan
Lywodraeth Cymru
Funded by
Welsh Government



During uncertain times – how do we ensure research plays its part?

- COVID-19 shock
 - Enormous changes in clinical need, patterns and volume of demand
 - Hiatus in provision of usual care, especially elective care; and in active research
 - Lack of evidence to underpin provision of care in new circumstances, for new and existing health care needs
 - Scramble for COVID-19 related research funding
 - Some expedited research permissions processes to allow timely production of evidence particularly re vaccines
- Example of research funded through Urgent Public Health Rolling Call: TRIM study
- Lessons learned, looking forward ...



Study of 999 Call Centre Triage of Suspected Covid-19

What TRIage model is safest and most effective for the Management of 999 callers with suspected COVID-19?
A linked outcome study (TRIM)

Snooks HA, Bell F, Brady M, Carson-Stevens A, Duncan E, England L, Evans BA, Foster T, Gallanders J, Gunson I, Harris-Mayes R, Hird K, Kingston M, Lyons RA, Miller E, Newton A, Porter AM, Quinn T, Rosser A, Siriwardena N, Spaight R, Williams V, Watkins A





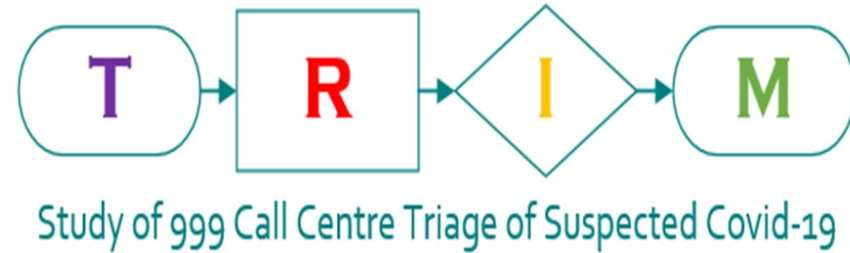
Study of 999 Call Centre Triage of Suspected Covid-19

Collaboration - essential

Study lead: Swansea University Medical School

- Co-applicants and collaborators:
 - **Universities** – University of Stirling; Kingston University; St George’s University London; Lincoln University
 - **Ambulance Services** – Welsh Ambulance Service NHS Trust; East of England Ambulance Service NHS Trust; East Midlands Ambulance Service NHS Trust; West Midlands Ambulance Service; Yorkshire Ambulance Service; National Ambulance Research Steering Group; College of Paramedics
 - **Other NHS:** Acute hospitals in East of England, East and West Midlands, Yorkshire; NHS Digital
 - **Public contributors**
- Funded by: **MRC via UKRI-DHSC COVID-19 Rapid Response Rolling Call July 2020 – June 2021 £360,000**

Context - cast your mind back to March 2020



- COVID-19 pandemic caused a surge in 999 calls in some areas
... Like New Years' Eve everyday ...
- Ambulance services cannot and should not attend and convey all COVID-19 patients
- 2 stage triage:
 - Who to attend?
 - Who to convey?
- Under-triage = potential patient harm; Over-triage = unnecessary resources used/hospital acquired infections
- Uncertainty about disease, risks, transmission routes
- Many 999 staff sick or isolating





Study of 999 Call Centre Triage of Suspected Covid-19

Research aims

- To evaluate models used to triage and manage emergency ambulance service care for patients with suspected COVID-19 who call 999 in England, Wales and Scotland
 - To describe triage models used during 2020 COVID-19 pandemic in the UK; call categorisation, attendance and conveyance associated with each model
 - Survey
 - To understand which models worked best to get the right patients to the right care
 - Linked outcomes – deaths/ITU/hospital admissions/COVID-19 infection
 - Stakeholder interviews



Canolfan PRIME **Cymru**
PRIME Centre **Wales**



Ariennir gan
Lywodraeth Cymru
Funded by
Welsh Government

Phase 1 methods



Study of 999 Call Centre Triage of Suspected Covid-19

- Survey of all UK ambulance services (n = 13);
 - Emailed questionnaire to all Chief Executives copied to Research Leads, email and telephone reminders
- The questionnaire covered:
 - Triage tools used February - August 2020 to identify and allocate responses to 999 calls coded as suspected COVID-19
 - Data related to 999 calls received, those coded as suspected COVID-19; attendance and conveyance outcomes



Canolfan PRIME Cymru
PRIME Centre Wales



Ariennir gan
Lywodraeth Cymru
Funded by
Welsh Government

Questionnaire results: Call centre triage



Study of 999 Call Centre Triage of Suspected Covid-19

- Two initial call triage systems used: AMPDS (n = 8), NHS Pathways (n = 4)
- Services made modifications to nationally agreed protocols:
 - upgraded response to calls e.g. ‘ineffective breathing’ , STEMI
 - added questions about travel and symptoms
- Calls further triaged by paramedics, nurses, advanced paramedics or GPs/other medically trained staff, through “Clinical Hub” or links with e.g. NHS 24, 111
- Various tools used for triaging less acute cases: Manchester Triage System; Lowcode, NHS Pathways, Odyssey, NHS Inform



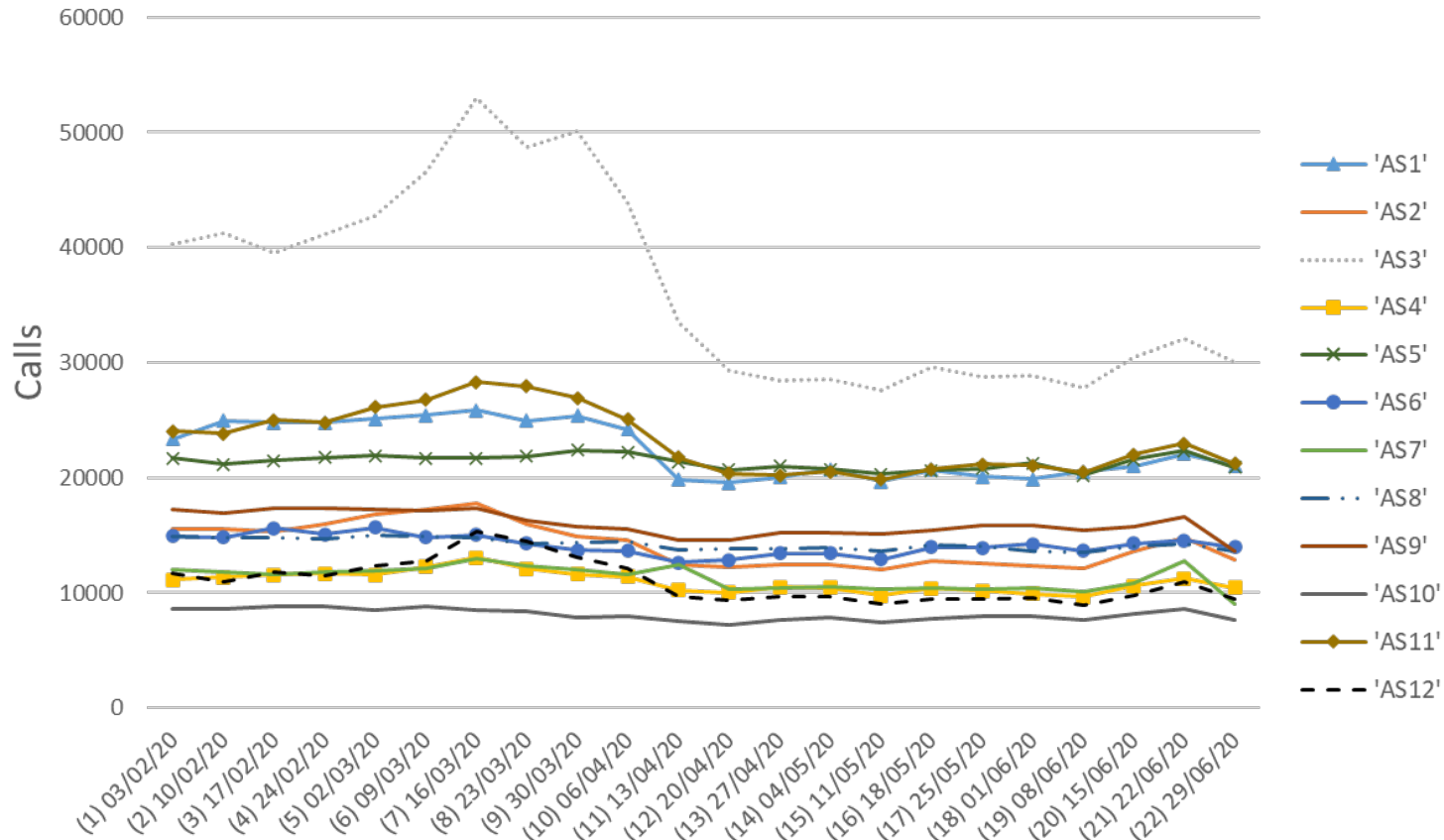
Questionnaire results: On scene triage



Services reported a range of protocols to support decision making on scene, including

- NEWS2
- Manchester Triage System
- JRCALC App
- Senior clinical advice was available remotely to support decision-making – from within the ambulance service or through external arrangements e.g. 111, “Consultant Connect”.

Total emergency calls by service and week of study



Canolfan PRIME Cymru
PRIME Centre Wales

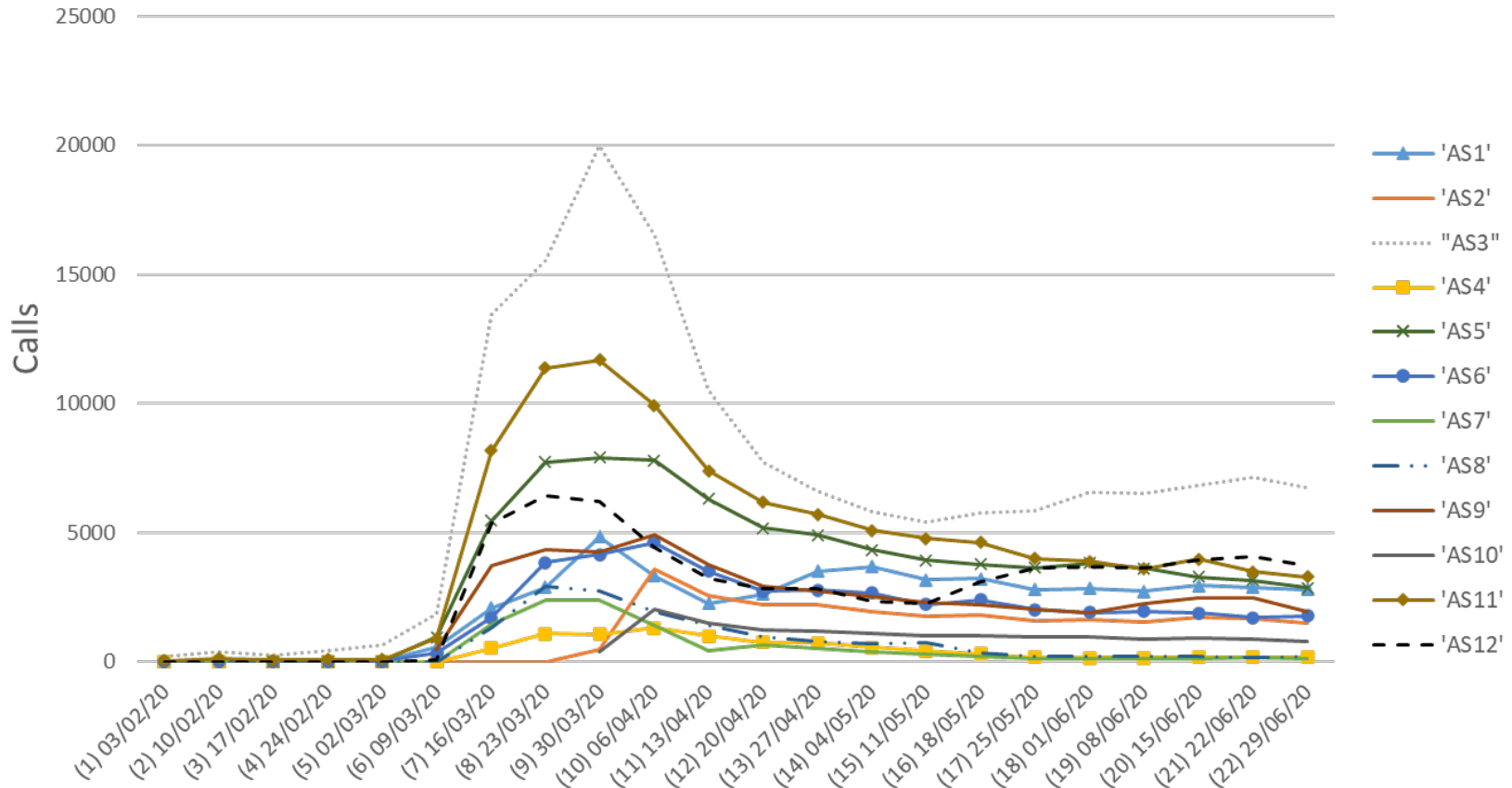


Ariennir gan
Lywodraeth Cymru
Funded by
Welsh Government

Calls identified as COVID-19



Study of 999 Call Centre Triage of Suspected Covid-19



Canolfan PRIME Cymru
PRIME Centre Wales



Ariennir gan
Lywodraeth Cymru
Funded by
Welsh Government

Total 999 calls, COVID-19 Attended, conveyed



Service (popn)	Total 999 incidents	% suspected Covid-19 incidents	% of suspected Covid-19 incidents attended	% of suspected Covid-19 incidents where patient conveyed
1 (6.2m)	494016	10	76	43
2 (4.8m)	312358	8	77	44
3 (8.6m)	802195	19	59	34
4 (2.7m)	241047	4	71	33
5 (7.5m)	469749	17	89	54
6 (5.5m)	311232	14	87	54
7 (7.0m)	248042	4	78	32
8 (4.7m)	313147	5	100	48
9 (5.5m)	351419	13	90	46
10 (3.2m)	178121	8	81	45
11 (5.6m)	510953	19	95	45
12 (5.0m)	270772	26	76	45



Canolfan PRIME Cymru
PRIME Centre Wales



Ariennir gan
Lywodraeth Cymru
Funded by
Welsh Government

Key findings: Call volume



Study of 999 Call Centre Triage of Suspected Covid-19

- Call volume varied widely between services
 - UK peak 13.1% above baseline (service range: -0.5% to +31.4%)
 - All services ended period with lower call volume (service range: -3.7% to -25.5%)
- Suspected COVID-19 calls totalled 604,146 (13.5% of calls)
 - Wide variation (service range 3.7% to 25.7%)
 - Within services variation was wide
 - AS12: 47.7% suspected COVID-19 at peak in early April
 - AS4: 11.4% at its highest
- Two effects
 - Sharp rise and then gradual fall in calls coded as suspected COVID-19
 - Rise and then fall in total emergency calls.
 - Trends peaked and troughed at different times



Canolfan PRIME Cymru
PRIME Centre Wales



Ariennir gan
Lywodraeth Cymru
Funded by
Welsh Government



Key findings: Prehospital triage outcomes



Study of 999 Call Centre Triage of Suspected Covid-19

Wide variations found in

- proportion of calls to which a vehicle was dispatched for face to face assessment and care:
 - 79% across all services, from 59% to 100%
 - No clear relationship with call volume
- proportion of patients conveyed to the ED
 - 44% across all services, from 32% to 54%
 - lowest rates of conveyance were seen in the two ambulance services with the lowest volume of calls coded as suspected COVID-19



Canolfan PRIME **Cymru**
PRIME Centre **Wales**



Ariennir gan
Lywodraeth Cymru
Funded by
Welsh Government

TRIM progress



Study of 999 Call Centre Triage of Suspected Covid-19

- Phase 1 results published August 2021

[Call volume, triage outcomes, and protocols during the first wave of the COVID-19 pandemic in the United Kingdom: Results of a national survey \(nih.gov\)](#)

- Permissions required including ethical approval, R&D approvals, CAG, data sharing agreements have been lengthy, interdependent, inconsistent and almost insurmountable at times
- Study extension approved to allow data linkage and analysis
- All permissions now in place, ambulance service data transferred to NHS Digital
- Awaiting datasets for analysis in order to answer key research question

With so much variation, what worked best for patients?

Wider lessons

- Now in new era – recovery?
 - Patients with COVID-19
 - Patients with other ‘usual’ conditions
- Demand continues to be volatile, unpredictable, overwhelming at times
- Triage crucial for care of patients with COVID-19 and other health emergencies
- Research must play a role in informing policy and practice by understanding:
 - Clinical/social needs
 - Provision of care during COVID-19
 - What worked well and what didn’t
- In order to produce timely evidence we need to be slicker across the research process, particularly in securing permissions to undertake work