SDRP Journal of Infectious Diseases Treatment & Therapy

OUTBREAKS OF A PRESUMED INFECTIOUS PATHOGEN CREATING ON/OFF SWITCHING IN DEATHS

Research

AUTHOR: **Rodney P Jones**

June 2017

Received Date: 24th Mar 2017
Accepted Date: 20th May 2017
Published Date:25th May 2017

Rodney P Jones
Healthcare Analysis & Forecasting, Worcester, UK

CORRESPONDENCE AUTHOR
Rodney P Jones
Email: hcaf_rod@yahoo.co.uk

CONFLICTS OF INTEREST
There are no conflicts of interest for any of the authors.

ABSTRACT

Background: There is now increasing international evidence for a series of outbreaks of a presumed infectious pathogen which result in 12-month periods of higher deaths, medical admissions, sickness absence, higher gender ratio at birth, stillbirths and certain congenital abnormalities. This study investigates the increase in deaths accompanying these outbreaks in the UK.

Methods: Monthly deaths for local government areas in the UK were analysed using a running (moving) 12-month total. The magnitude of sudden step-like increases in deaths were calculated by comparing successive 12-month periods.

Results: Statistically significant and large increases in death are observed at approximate 2-year intervals across all local government geographies. Such local 'outbreaks' aggregate to give periods of higher regional and national deaths.

Conclusions: A new type of infectious outbreak appears to have been identified, with the potential for a profound change in public health policy. The immune modifying virus cytomegalovirus can be circumstantially implicated.

Keywords: Emerging infectious diseases, death, all-cause mortality, spatial analysis, United Kingdom

Background

There is now increasing evidence for novel outbreaks of a presumed infectious pathogen. The unique feature of these outbreaks is that various measures of morbidity and mortality all rise for a 12-month period before reverting to baseline levels [1-6]. These outbreaks can be traced back to the 1950's, but presumably occur prior to this [7]. The effect upon deaths has been documented in the UK, across Europe, Australia, New Zealand, USA [7-10], and Canada (unpublished), and occurs in sub-local authority small areas [4,11,12].

The simplest way of detecting these unique events is to utilize a running (moving) 12-month total of deaths. A moving 12-month total is a simple but elegant way to detect on/off or high/low behaviour in a time series. In a running total, such on/off behaviour creates saw-tooth features in which the upward face of the saw-tooth repre-

sents 'on' while the downward face represents 'off'. The apex of the saw-tooth gives the magnitude of the increase which prevailed during the previous 12-month period.
A running total also has the advantage that seasonality is removed, and that the resulting trend has lower statistical uncertainty due to 12-month totals, rather than the use of monthly data. The is absolutely no demographic-based reason for such saw-tooth behaviour to occur.
This study uses local government monthly data from the UK to demonstrate this behaviour.

Methods

Monthly deaths were obtained for local government areas in England & Wales (Jan-01 to Feb-17) from the Office for National Statistics, in Scotland (Jan-91 to Dec-16) from National Records of Scotland, and from Northern Ireland (Jan-91 to Dec-15) from Northern Ireland Statistics and Research Agency.
Monthly deaths were aggregated into running (moving) 12-month totals. The magnitude of the step-like increase in each local government areas was assessed for statistical significance using Poisson statistics. In Poisson statistics, the standard deviation is equal to the square root of the average, and 85% of all data lies below +1 standard deviation of the average.

Results

Figure 1 provides an exemplar running (moving) 12-month total of deaths (all-cause mortality) for North Devon in England. A series of saw-tooth features are evident with the first showing an apex at Dec-01. This implies that a step-change or switch-on in deaths occurred at Jan-01, while switch-off commences in Jan-02. North Devon covers a reasonably large area and the saw-tooth behaviour is sometimes less sharp, but never-the-less still evident. While the switch-on tends to occur most often in Dec/Jan this is not exclusively the case. This behaviour is repeated across all local government areas in the UK.
Figure 2 presents the magnitude of each step-like (or on/off) change for local authority areas in England and Wales between 2001 and 2017. Changes which are less than the 85% confidence interval in a Poisson distribution are excluded. The maximum increase in each period has been calculated based on periods within which most local government areas appear to have increased, i.e. each period is roughly 2-years wide but centres on a year such as 2002, etc. The 2016 interval covers Jul-16 to Feb-17 and the magnitude of the step-increase has been estimated from partial data. A data table containing all government areas is given in the Supplementary material.

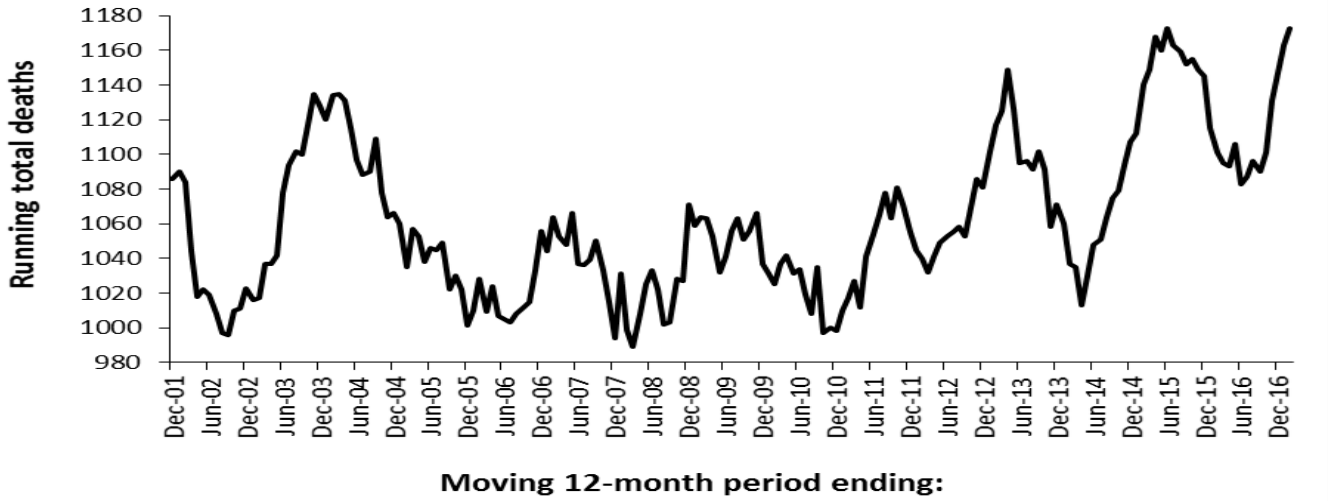

Figure 1: Running (moving) 12-month total of deaths in North Devon commencing for the 12-month total ending at Dec-01 and concluding at the 12-month total finishing Feb-17

Features of special interest in Figure 2 is the wide range in the magnitude of the step-increase experienced in similar sized areas (size = average deaths), and that some outbreaks have generally higher increases than others. Also, that the magnitude reduces as the size increases. This effect arises due to the cancelling out effect of different initiation times within larger areas [9].

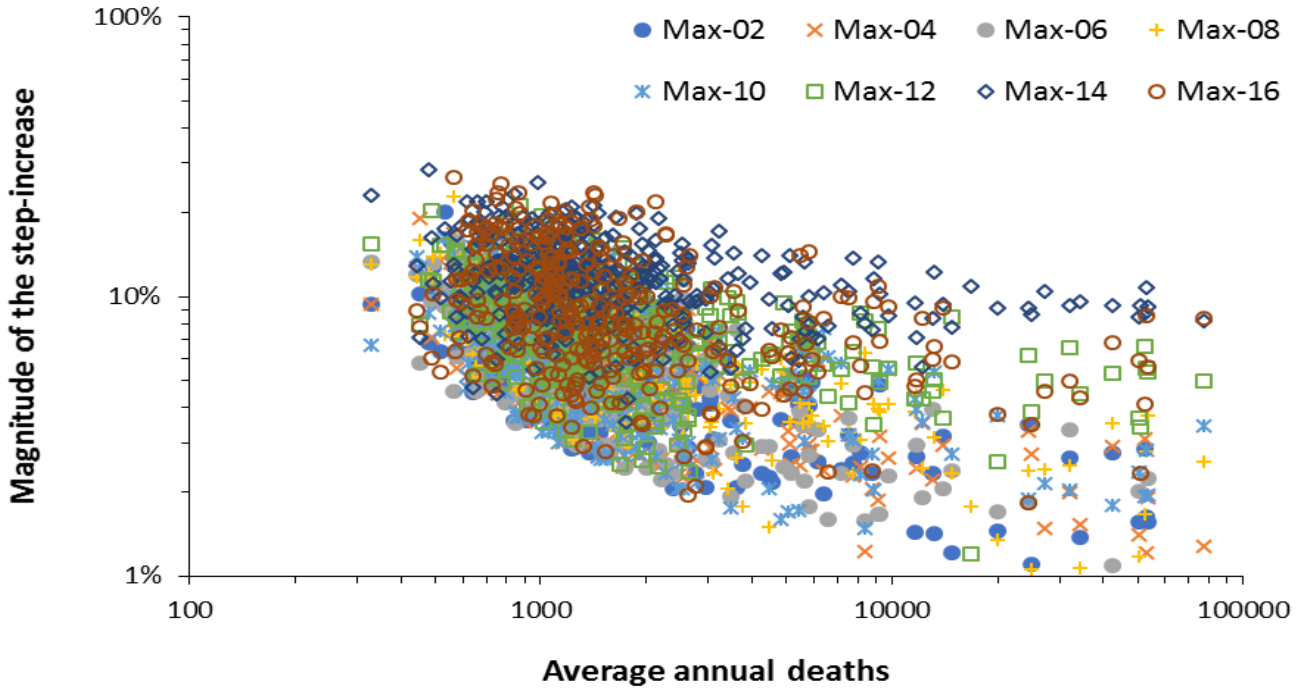

Figure 2: Magnitude of the step-like increase in deaths in 395 local government areas within England and Wales occurring within 2-year intervals

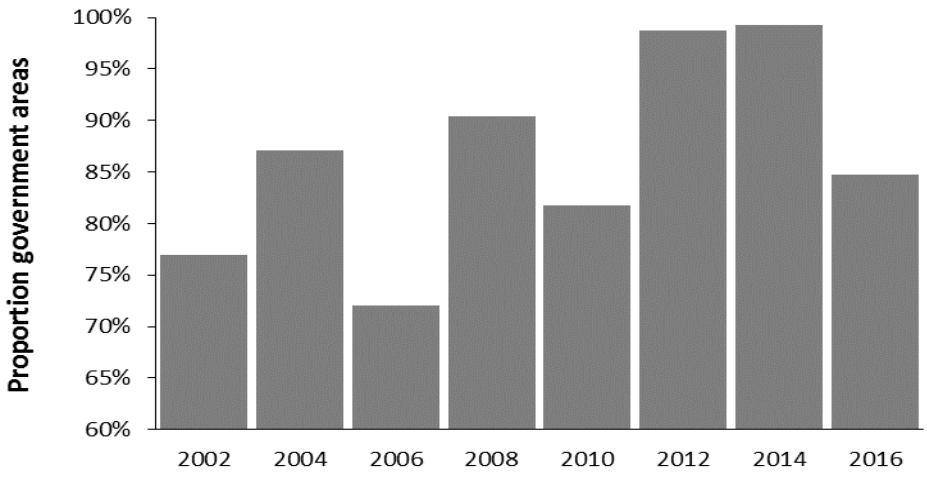

Figure 3: Proportion of local government areas having a step-increase in deaths exceeding the 85% confidence interval for each time interval.

As can be seen in Figure 3 nearly 100% of areas exceed statistical significance for the 2012 and 2014 outbreaks but this drops to somewhere around 70% for the 2006 outbreak period. The proportion for the 2016 outbreak may be underestimated due to the lack of a full 12-months data in 2017. This is principally a limitation of the running12-month total method. Hence some outbreaks affect more areas than others.

The proportion for the 2016 outbreak may be underestimated due to the lack of a full 12-months data in 2017. This is principally a limitation of the running12-month total method. Hence some outbreaks affect more areas thanothers. Note that in a Poisson distribution some 85% of all data lies below +1-standard deviation of the average, however, in Figure 3 at least 70% of government areas lie above a +1-standard deviation equivalent increase.

Increase in deaths	2002	2004	2006	2008	2010	2012	2014	2016
Proportion affected	77%	87%	72%	90%	82%	99%	99%	85%
Upper quartile	8.2%	8.6%	8.6%	8.9%	8.2%	10.4 %	14.1 %	12.6%
Median	6.0%	6.4%	5.8%	6.3%	6.0%	8.0%	11.5 %	8.5%
Lower quartile	3.9%	4.4%	4.0%	4.4%	4.0%	5.8%	8.8%	6.0%

Table 1: Proportion of government area affected by each outbreak along with various measure for the magnitude of the increase in deaths

Table 1 summarises the step-like increase in deaths seen in 395 local government areas in England and Wales. As can be seen the 2014 event has the highest overall increase in deaths, while the events centred around 2002, 2006 and 2010 have the lowest overall magnitude. The median number of deaths in the various local government areas is 1,265 (963 to 2,130 lower quartile to upper quartile).

Figure 4 investigates the issue of statistical significance by converting the magnitude of maximum step-increase in deaths in each local government area into standard deviation equivalents. Data in Figure 4 covers all local government areas in the UK with the maximum step-increase referring to the largest increase across all years. This conversion relies on the fact that the standard deviation of a Poisson distribution is equal to the square root of the average. Hence the absolute increase in deaths is divided by the square root of the average deaths to give the magnitude of the increase in standard deviation equivalents. Anything higher than a +2-standard deviation equivalent increase can be considered to have high statistical significance (>95% confidence interval). As can be seen, the maximum increase in all government areas across the UK is entirely beyond that arising from chance, i.e. arises from systematic forces. Also from Figure 4, the R^2 for the linear regression with size indicates that only 45% of the variation is explained by size alone.

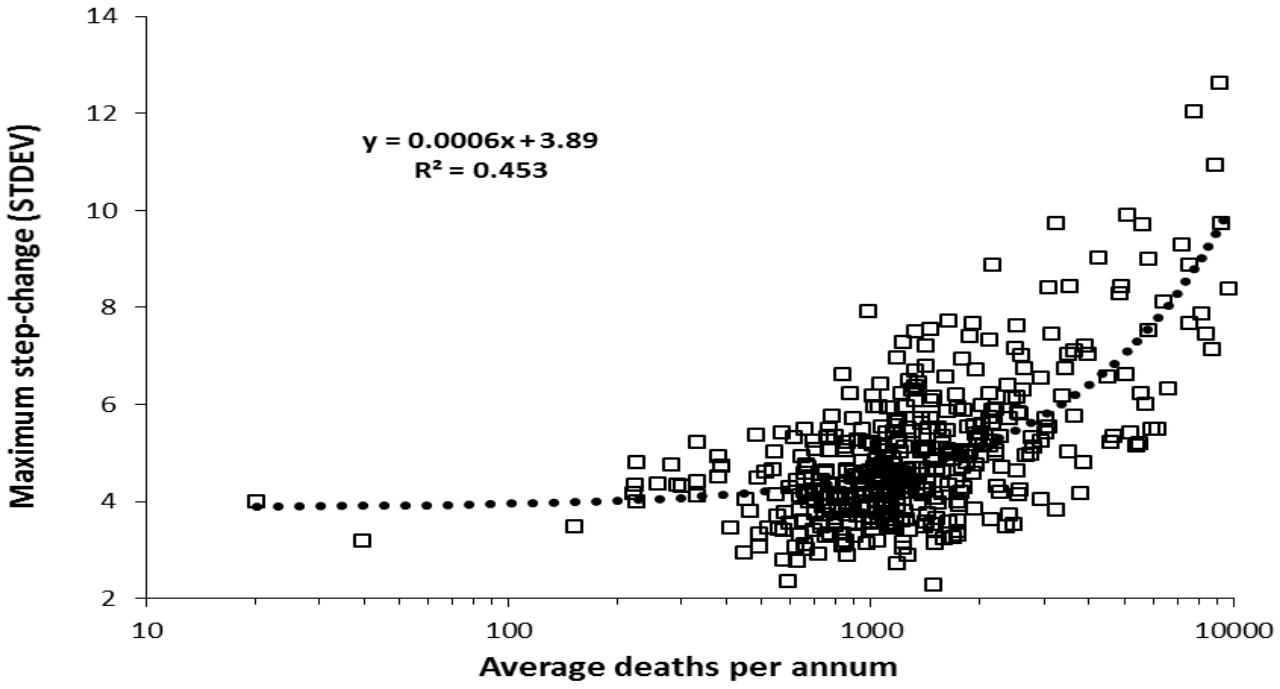

Figure 4: Maximum step-increase in each local government area as standard deviation equivalent

Discussion

Very-small area studies have established that the increase in deaths observed in each local government area is a composite of small-area spread of the presumed infectious agent. The apparent initiation date at local government area level therefore arises as a by-product of spread within each larger area which will occur along social networks [10-12].

This study has demonstrated that at local government area level (as opposed to very small area level) the outbreaks produce statistically significant increases in death which vary in magnitude with location and the timing of the outbreak. Hence the 2006 outbreak affected only 70% of local government areas, etc.

It has been noted elsewhere that the very high proportion of large increases in deaths observed in the 2014 outbreak observed in Figure 2 arose from a seeming interaction between influenza and the presumed infectious agent [13]. This requires additional investigation.

Typical median increases in deaths (Table 1) range from +5.8% (2006 event) through to +11.5% (2014 event). Such large increases in death extending over a full 12-month period are clearly of great public health interest.

There are several reasons why these events have only recently been discovered. Firstly, no one thought that an infectious agent existed which could increase mortality and morbidity for a full 12-month period, and therefore no one looked. Secondly, most government agencies concentrate on deaths in larger regional or national geographies.

Figure 2 demonstrated that the effect of these outbreaks is attenuated in larger geographical areas. Prior to 2014, for the whole of England and Wales, the apparent effect of these outbreaks only ranged from +0.4% to +5%, and so they were often overlooked. The 2014 event, and subsequent interaction with influenza, led to a +9% increase, which led various researchers to the incorrect conclusion that austerity in local government funding had led to the higher deaths [14-17].

Despite extensive research by this author government agencies in the UK appear totally unwilling to even discuss the possibility of an outbreak of a new infectious disease. This is partly appropriate since the actual agent has not been identified, however, their silence is acting as a huge impediment to the initiation of research to identify the agent. This explains why this author is the only person currently investigating these outbreaks.

Given the range of conditions/diagnoses which show an increase during these outbreaks the immune modifying herpes virus, cytomegalovirus (CMV) has been circumstantially implicated [18-19]. However, this remains to be established conclusively. Slightly different responses between males and females also remains a characteristic of these events [12,18,20].

Conclusions

Totally unexpected and large increases in death are occurring in local government areas throughout the UK, and elsewhere in the world. These occur roughly every two years, although infectious spread seems to occur over an extended period, both within local government areas and between. Given the very large increases in death that accompany each event urgent research is required to identify the exact agent.

Supplementary Data

Local Government Area	Average Deaths	Max-02	Max-04	Max-06	Max-08	Max-10	Max-12	Max-14	Max-16	Max-up	+ 1 SD	Max Year	Signif-icant Count
ENGLAND & WALES	509,194	1%	2%	0.4%	2%	2%	5%	9%	6%	9%	0.1%	2014	8
ENGLAND	477,116	1%	2%	0.2%	2%	2%	5%	9%	6%	9%	0.1%	2014	8
SOUTH EAST	77,135	1%	1%	n/s	3%	3%	5%	8%	8%	8%	0.4%	2014	7
SOUTH WEST	53,600	2%	2%	2%	4%	2%	5%	9%	6%	9%	0.4%	2014	8
EAST	52,915	2%	1%	n/s	3%	3%	6%	11%	9%	11%	0.4%	2014	7
WEST MIDLANDS	52,346	3%	3%	n/s	2%	2%	7%	9%	4%	9%	0.4%	2014	7
LONDON	50,997	1%	1%	n/s	1%	1%	3%	9%	2%	9%	0.4%	2014	7
YORKSHIRE & THE HUMBER	50,398	2%	1%	2%	1%	2%	4%	8%	6%	8%	0.4%	2014	8
EAST MIDLANDS	42,192	3%	3%	1%	4%	2%	5%	9%	7%	9%	0.5%	2014	8
Outer London	34,272	1%	2%	n/s	1%	1%	4%	10%	4%	10%	0.5%	2014	7

WALES	32,077	3%	2%	3%	2%	2%	7%	9%	5%	9%	0.6%	2014	8
NORTH EAST	27,139	1%	1%	n/s	2%	2%	5%	10%	5%	10%	0.6%	2014	7
Greater Manchester (Met County)	24,852	1%	3%	n/s	1%	n/s	4%	9%	3%	9%	0.6%	2014	6
West Midlands (Met County)	24,557	3%	3%	2%	2%	2%	6%	9%	2%	9%	0.6%	2014	8
West Yorkshire (Met County)	19,999	1%	1%	2%	1%	4%	3%	9%	4%	9%	0.7%	2014	8
Inner London	16,726	n/s	n/s	n/s	2%	n/s	1%	11%	n/s	11%	0.8%	2014	3
Merseyside (Met County)	14,774	1%	n/s	2%	2%	3%	8%	8%	6%	8%	0.8%	2012	7
Kent	13,929	3%	3%	2%	5%	1%	4%	9%	9%	9%	1%	2014	8
Essex	13,168	1%	n/s	n/s	3%	5%	5%	12%	7%	12%	1%	2014	6
South Yorkshire (Met County)	13,075	2%	2%	4%	1%	n/s	5%	8%	6%	8%	1%	2014	7
Lancashire	12,155	1%	4%	2%	2%	4%	4%	6%	8%	6%	1%	2014	8
Hampshire	11,754	3%	2%	3%	4%	4%	6%	7%	5%	7%	1%	2014	8
Tyne & Wear (Met County)	11,609	1%	n/s	n/s	4%	4%	4%	9%	5%	9%	1%	2014	6
Surrey	9,732	n/s	3%	2%	4%	5%	6%	9%	9%	9%	1%	2014	7
Norfolk	9,225	5%	3%	2%	4%	n/s	5%	10%	7%	10%	1%	2014	7
Hertfordshire	9,160	n/s	2%	2%	4%	5%	8%	13%	11%	13%	1%	2014	7
West Sussex	8,880	n/s	n/s	n/s	4%	2%	3%	12%	10%	12%	1%	2014	5
Birmingham	8,753	2%	2%	n/s	n/s	3%	6%	8%	2%	8%	1%	2014	6
Devon	8,378	n/s	1%	2%	6%	1%	8%	8%	5%	8%	1%	2012	7
Staffordshire	8,142	3%	2%	n/s	3%	2%	9%	9%	6%	9%	1%	2012	7
Nottinghamshire	7,744	3%	2%	3%	2%	3%	6%	14%	7%	14%	1%	2014	8
Lincolnshire	7,563	3%	3%	4%	3%	3%	4%	10%	10%	10%	1%	2014	8
Suffolk	7,177	2%	4%	2%	5%	6%	5%	11%	10%	11%	1%	2014	8
Leeds	6,592	n/s	n/s	2%	3%	6%	4%	8%	2%	8%	1%	2014	6
East Sussex	6,402	2%	2%	n/s	3%	8%	6%	10%	8%	10%	1%	2014	7
North Yorkshire	6,152	3%	6%	3%	n/s	6%	7%	7%	5%	7%	1%	2014	7
Cornwall	5,927	5%	3%	7%	4%	n/s	6%	7%	6%	7%	1%	2014	7
Northamptonshire	5,812	6%	3%	3%	4%	4%	5%	10%	8%	10%	1%	2014	8
Gloucestershire	5,797	4%	3%	2%	4%	n/s	7%	8%	14%	12%	1%	2014	7
Leicestershire	5,696	7%	8%	n/s	6%	5%	8%	8%	7%	8%	1%	2012	7
Somerset	5,630	4%	3%	2%	7%	3%	7%	13%	5%	13%	1%	2014	8
Worcestershire	5,571	5%	7%	3%	4%	5%	8%	8%	9%	8%	1%	2014	8
Cumbria	5,494	4%	2%	4%	4%	7%	7%	7%	14%	7%	1%	2014	8
County Durham	5,414	4%	4%	n/s	6%	2%	7%	6%	5%	7%	1%	2012	7
Oxfordshire	5,166	3%	3%	2%	6%	4%	8%	6%	7%	8%	1%	2012	8
Warwickshire	5,093	5%	3%	n/s	4%	5%	7%	14%	5%	14%	1%	2014	7
Sheffield	5,047	n/s	3%	5%	n/s	2%	5%	9%	6%	9%	1%	2014	6
Cambridgeshire	4,914	5%	4%	2%	5%	n/s	10%	12%	4%	12%	1%	2014	7
Dorset	4,834	4%	5%	n/s	6%	2%	5%	12%	8%	12%	1%	2014	7

Liverpool	4,576	2%	n/s	n/s	3%	5%	6%	8%	6%	8%	1%	2014	6
Bradford	4,482	2%	5%	3%	1%	2%	6%	10%	6%	10%	1%	2014	8
Wiltshire	4,251	2%	3%	3%	5%	n/s	6%	14%	4%	14%	2%	2014	7
Buckinghamshire	3,960	n/s	4%	n/s	5%	5%	6%	11%	5%	11%	2%	2014	6
Manchester	3,838	n/s	n/s	2%	4%	n/s	3%	8%	4%	8%	2%	2014	5
Kirklees	3,770	3%	n/s	4%	2%	3%	5%	7%	3%	7%	2%	2014	7
Cheshire East	3,642	n/s	n/s	n/s	6%	n/s	9%	12%	9%	12%	2%	2014	4
Wirral	3,628	2%	5%	8%	3%	3%	10%	6%	n/s	10%	2%	2012	7
East Riding of Yorkshire	3,533	n/s	n/s	3%	6%	4%	7%	14%	10%	14%	2%	2014	6
Bristol, City of	3,493	4%	4%	2%	5%	2%	9%	6%	5%	9%	2%	2012	8
Northumberland	3,420	6%	4%	4%	2%	5%	10%	12%	6%	12%	2%	2014	8
Wakefield	3,231	n/s	5%	3%	5%	8%	6%	17%	8%	17%	2%	2014	7
Cheshire West & Chester	3,228	n/s	n/s	n/s	4%	3%	6%	7%	6%	7%	2%	2014	5
Shropshire	3,131	7%	2%	6%	7%	n/s	8%	14%	11%	14%	2%	2014	7
Wigan	3,083	3%	7%	5%	2%	5%	7%	11%	6%	11%	2%	2014	8
Dudley	3,080	6%	n/s	3%	4%	3%	11%	15%	4%	15%	2%	2014	7
Doncaster	3,031	4%	3%	5%	3%	n/s	9%	5%	10%	10%	2%	2012	7
Sandwell	3,023	4%	7%	6%	n/s	n/s	9%	10%	4%	10%	2%	2014	6
Sefton	2,953	n/s	n/s	6%	7%	5%	9%	10%	3%	10%	2%	2014	6
Sunderland	2,941	2%	n/s	3%	5%	6%	7%	7%	3%	7%	2%	2012	7
Coventry	2,803	5%	5%	n/s	6%	n/s	6%	10%	n/s	10%	2%	2014	5
Cardiff	2,773	4%	3%	6%	6%	2%	7%	10%	8%	10%	2%	2014	8
Stockport	2,747	2%	6%	n/s	4%	n/s	7%	10%	2%	10%	2%	2014	6
Bromley	2,662	5%	5%	5%	n/s	3%	2%	10%	14%	10%	2%	2014	7
Newcastle upon Tyne	2,639	3%	n/s	n/s	5%	n/s	4%	13%	2%	13%	2%	2014	5
Bolton	2,624	7%	9%	9%	4%	3%	4%	14%	6%	14%	2%	2014	8
Rotherham	2,605	8%	5%	5%	8%	n/s	5%	14%	13%	14%	2%	2014	7
Stoke-on-Trent	2,563	7%	2%	6%	5%	3%	7%	8%	7%	8%	2%	2014	8
Rhondda, Cynon, Taff	2,558	4%	4%	11%	4%	7%	8%	8%	n/s	11%	2%	2006	7
Leicester	2,558	7%	5%	n/s	5%	n/s	8%	8%	3%	8%	2%	2012	6
Kingston upon Hull, City of	2,554	n/s	4%	3%	3%	4%	3%	12%	11%	12%	2%	2014	7
Walsall	2,528	6%	4%	10%	8%	2%	4%	15%	n/s	15%	2%	2014	7
Swansea	2,525	7%	5%	3%	3%	3%	8%	13%	9%	13%	2%	2014	8
Wolverhampton	2,510	6%	7%	4%	6%	6%	6%	9%	n/s	9%	2%	2014	7
Croydon	2,506	3%	n/s	3%	6%	5%	6%	14%	n/s	14%	2%	2014	6
Barnet	2,481	n/s	2%	n/s	5%	3%	4%	7%	7%	7%	2%	2014	6
Nottingham	2,447	6%	3%	4%	7%	2%	3%	12%	5%	12%	2%	2014	8
Plymouth	2,405	4%	9%	4%	4%	5%	12%	10%	8%	12%	2%	2012	8
Barnsley	2,392	2%	6%	2%	n/s	4%	7%	8%	n/s	8%	2%	2014	6
Salford	2,362	4%	5%	5%	7%	n/s	6%	7%	9%	7%	2%	2008	7

Brighton & Hove	2,283	9%	9%	n/s	n/s	2%	4%	10%	17%	10%	2%	2014	6
Havering	2,272	9%	5%	3%	4%	n/s	11%	9%	17%	11%	2%	2012	7
Tameside	2,261	n/s	4%	6%	7%	4%	7%	9%	9%	9%	2%	2014	7
Derby	2,223	7%	6%	4%	8%	n/s	9%	6%	7%	9%	2%	2012	7
North Somerset	2,212	4%	3%	2%	5%	11%	5%	13%	7%	13%	2%	2014	8
Carmarthenshire	2,194	7%	8%	n/s	3%	3%	8%	12%	4%	12%	2%	2014	7
Oldham	2,162	7%	2%	3%	4%	5%	2%	13%	n/s	13%	2%	2014	7
North Tyneside	2,162	7%	3%	6%	6%	7%	8%	19%	6%	19%	2%	2014	8
Gateshead	2,136	6%	n/s	n/s	5%	6%	8%	7%	8%	8%	2%	2012	6
Arun	2,130	n/s	6%	n/s	5%	3%	4%	16%	5%	16%	2%	2014	6
St. Helens	2,129	n/s	4%	6%	4%	n/s	9%	11%	22%	11%	2%	2014	6
Enfield	2,127	5%	3%	n/s	8%	n/s	6%	14%	n/s	14%	2%	2014	5
Medway	2,125	n/s	7%	6%	4%	4%	9%	14%	n/s	14%	2%	2014	6
Tendring	2,114	4%	7%	n/s	5%	9%	3%	12%	7%	12%	2%	2014	7
New Forest	2,035	9%	6%	4%	8%	5%	8%	12%	5%	12%	2%	2014	8
Bournemouth	2,023	3%	3%	n/s	7%	8%	9%	15%	7%	15%	2%	2014	7
South Gloucestershire	2,012	10%	9%	7%	6%	9%	7%	13%	10%	13%	2%	2014	8
Rochdale	2,009	5%	7%	2%	3%	3%	3%	11%	6%	11%	2%	2014	8
Ealing	1,974	3%	n/s	n/s	5%	n/s	4%	12%	6%	12%	2%	2014	5
Trafford	1,968	6%	6%	n/s	4%	6%	8%	12%	5%	12%	2%	2014	7
Central Bedfordshire	1,944	n/s	n/s	6%	5%	n/s	10%	11%	13%	11%	2%	2014	5
Bexley	1,942	8%	n/s	n/s	6%	3%	5%	13%	7%	13%	2%	2014	6
Herefordshire, County of	1,940	5%	8%	6%	5%	7%	3%	15%	3%	15%	2%	2014	8
Calderdale	1,925	4%	3%	6%	9%	3%	4%	9%	4%	9%	2%	2014	8
Blackpool	1,917	n/s	7%	5%	n/s	4%	4%	13%	5%	13%	2%	2014	6
Hillingdon	1,916	n/s	4%	4%	4%	4%	11%	18%	10%	18%	2%	2014	7
Southend-on-Sea	1,913	4%	n/s	4%	7%	3%	11%	11%	10%	11%	2%	2014	7
Redbridge	1,872	5%	8%	n/s	n/s	3%	5%	20%	n/s	20%	2%	2014	5
Southampton	1,869	9%	6%	n/s	11%	3%	10%	6%	20%	12%	2%	2008	7
Solihull	1,859	7%	5%	5%	5%	7%	11%	6%	8%	11%	2%	2012	8
East Devon	1,845	n/s	7%	n/s	5%	n/s	13%	7%	6%	13%	2%	2012	5
Warrington	1,841	5%	7%	9%	n/s	7%	10%	12%	7%	12%	2%	2014	7
Bury	1,797	n/s	7%	8%	3%	5%	11%	14%	n/s	14%	2%	2014	6
East Lindsey	1,796	6%	4%	7%	8%	3%	6%	10%	12%	10%	2%	2014	8
Torbay	1,781	6%	7%	9%	4%	n/s	6%	11%	6%	11%	2%	2014	7
York	1,763	7%	3%	n/s	5%	10%	4%	4%	10%	10%	2%	2010	7
Caerphilly	1,759	8%	6%	11%	6%	12%	9%	9%	8%	12%	2%	2010	8
Portsmouth	1,746	7%	5%	8%	3%	9%	8%	4%	8%	9%	2%	2010	8
Thanet	1,741	6%	6%	n/s	8%	7%	5%	8%	13%	9%	2%	2008	7
Greenwich	1,739	5%	6%	3%	n/s	3%	3%	8%	7%	8%	2%	2014	7
Stockton-on-Tees	1,738	5%	8%	6%	4%	4%	5%	14%	11%	14%	2%	2014	8
South Tyneside	1,731	4%	5%	2%	3%	8%	6%	8%	10%	8%	2%	2014	8
Northampton	1,727	8%	n/s	10%	3%	6%	7%	9%	6%	10%	2%	2006	7
Isle of Wight	1,720	7%	5%	3%	6%	10%	15%	10%	16%	15%	2%	2012	8
Lewisham	1,711	n/s	2%	n/s	11%	4%	4%	7%	n/s	11%	2%	2008	5

Wandsworth	1,681	n/s	6%	n/s	n/s	n/s	2%	9%	4%	9%	2%	2014	4
South Somerset	1,679	6%	3%	n/s	9%	3%	8%	12%	8%	12%	2%	2014	7
North East Lincolnshire	1,669	7%	n/s	7%	6%	n/s	8%	8%	19%	12%	2%	2014	6
North Lincolnshire	1,652	6%	5%	5%	4%	9%	8%	12%	10%	12%	2%	2014	8
Bath & North East Somerset	1,641	9%	7%	5%	4%	4%	8%	11%	6%	11%	2%	2014	8
King's Lynn & West Norfolk	1,640	n/s	5%	n/s	3%	8%	8%	6%	9%	9%	2%	2012	6
Brent	1,632	4%	n/s	4%	4%	5%	10%	19%	n/s	19%	2%	2014	6
Wealden	1,625	5%	13%	3%	9%	15%	5%	10%	11%	15%	2%	2010	8
Neath Port Talbot	1,615	4%	5%	6%	12%	8%	4%	12%	14%	12%	2%	2008	8
Poole	1,608	10%	7%	5%	10%	3%	6%	17%	5%	17%	2%	2014	8
Swindon	1,594	n/s	6%	4%	5%	6%	8%	8%	4%	8%	3%	2012	7
Milton Keynes	1,579	5%	5%	8%	9%	9%	10%	11%	5%	11%	3%	2014	8
Canterbury	1,573	n/s	9%	n/s	5%	3%	10%	13%	9%	13%	3%	2014	6
Waltham Forest	1,573	4%	4%	3%	n/s	n/s	7%	13%	7%	13%	3%	2014	6
Harrogate	1,571	3%	8%	8%	6%	6%	10%	12%	8%	12%	3%	2014	8
Lambeth	1,536	n/s	n/s	n/s	9%	n/s	n/s	16%	3%	16%	3%	2014	3
Conwy	1,526	7%	3%	3%	7%	3%	6%	10%	n/s	10%	3%	2014	7
Harrow	1,518	5%	4%	n/s	n/s	n/s	4%	12%	n/s	12%	3%	2014	4
Sutton	1,510	5%	7%	6%	9%	4%	8%	9%	12%	10%	3%	2014	8
Hounslow	1,505	4%	n/s	3%	5%	4%	5%	9%	7%	9%	3%	2014	7
Lancaster	1,501	n/s	4%	8%	n/s	5%	9%	8%	6%	9%	3%	2012	6
Basildon	1,494	10%	n/s	9%	4%	8%	11%	9%	11%	11%	3%	2012	7
Southwark	1,491	n/s	n/s	4%	4%	3%	n/s	7%	5%	7%	3%	2014	5
Powys	1,490	3%	4%	n/s	7%	5%	8%	13%	14%	13%	3%	2014	7
Knowsley	1,488	9%	5%	4%	4%	9%	16%	11%	15%	16%	3%	2012	8
Teignbridge	1,478	3%	n/s	7%	8%	4%	8%	5%	9%	9%	3%	2008	7
Bridgend	1,466	6%	4%	4%	12%	13%	4%	9%	8%	13%	3%	2010	8
Redcar & Cleveland	1,463	7%	3%	4%	5%	8%	8%	20%	8%	20%	3%	2014	8
Peterborough	1,452	4%	13%	n/s	5%	3%	9%	15%	15%	15%	3%	2014	7
Breckland	1,444	8%	6%	4%	n/s	n/s	5%	15%	5%	15%	3%	2014	6
Luton	1,435	3%	4%	n/s	4%	n/s	12%	9%	23%	12%	3%	2012	6
Colchester	1,425	n/s	6%	4%	5%	5%	5%	10%	6%	10%	3%	2014	7
Flintshire	1,424	7%	8%	n/s	4%	3%	12%	14%	7%	14%	3%	2014	7
Waveney	1,416	4%	5%	7%	7%	4%	7%	11%	12%	11%	3%	2014	8
Middlesbrough	1,415	5%	7%	n/s	9%	n/s	7%	18%	18%	18%	3%	2014	6
Wyre	1,413	8%	6%	7%	6%	9%	10%	9%	6%	10%	3%	2012	8
Newham	1,412	n/s	5%	n/s	5%	n/s	7%	21%	n/s	21%	3%	2014	4
Worthing	1,411	n/s	5%	n/s	9%	4%	8%	13%	24%	13%	3%	2014	6
Barking & Dagenham	1,401	10%	8%	n/s	10%	n/s	7%	13%	n/s	13%	3%	2014	5
Newport	1,397	6%	6%	7%	5%	5%	9%	8%	6%	9%	3%	2012	8
Charnwood	1,386	11%	6%	n/s	13%	10%	11%	7%	19%	15%	3%	2008	7
Scarborough	1,385	4%	8%	4%	n/s	11%	6%	8%	4%	11%	3%	2010	7
Rother	1,384	10%	n/s	n/s	9%	4%	5%	11%	7%	11%	3%	2014	6
Chichester	1,372	n/s	7%	7%	5%	9%	3%	14%	7%	14%	3%	2014	7
Maidstone	1,371	3%	6%	n/s	7%	11%	9%	5%	21%	13%	3%	2010	7

Pembrokeshire	1,371	3%	11%	n/s	8%	n/s	9%	16%	7%	16%	3%	2014	6
Suffolk Coastal	1,370	3%	12%	n/s	8%	15%	10%	11%	10%	15%	3%	2010	7
Broadland	1,369	11%	7%	n/s	10%	n/s	9%	14%	6%	14%	3%	2014	6
Wrexham	1,355	n/s	6%	4%	6%	n/s	7%	12%	13%	12%	3%	2014	6
North Norfolk	1,350	6%	7%	n/s	8%	n/s	10%	11%	8%	11%	3%	2014	6
Telford & Wrekin	1,347	n/s	3%	5%	8%	6%	12%	19%	7%	19%	3%	2014	7
Aylesbury Vale	1,339	n/s	8%	n/s	10%	6%	5%	12%	6%	12%	3%	2014	6
Braintree	1,326	5%	n/s	n/s	11%	10%	17%	18%	3%	18%	3%	2014	6
Gwynedd	1,323	4%	10%	4%	9%	5%	12%	19%	n/s	19%	3%	2014	7
Bedford	1,323	4%	n/s	5%	9%	n/s	7%	17%	6%	17%	3%	2014	6
Eastbourne	1,301	n/s	9%	n/s	4%	11%	11%	12%	9%	12%	3%	2014	6
Chelmsford	1,299	4%	7%	6%	8%	9%	12%	15%	11%	15%	3%	2014	8
Blackburn with Darwen	1,295	9%	n/s	6%	5%	n/s	5%	11%	17%	14%	3%	2014	6
Reigate & Banstead	1,294	n/s	8%	5%	4%	7%	8%	18%	n/s	18%	3%	2014	6
Mid Sussex	1,288	n/s	4%	8%	10%	5%	7%	12%	15%	12%	3%	2014	7
Merton	1,278	6%	4%	5%	n/s	n/s	7%	10%	6%	10%	3%	2014	6
Huntingdonshire	1,272	12%	8%	7%	8%	4%	14%	19%	5%	19%	3%	2014	8
South Kesteven	1,265	3%	7%	5%	4%	7%	8%	13%	9%	13%	3%	2014	8
Havant	1,263	3%	3%	3%	5%	5%	8%	8%	8%	8%	3%	2014	8
Newcastle-under-Lyme	1,260	5%	10%	11%	7%	4%	6%	16%	4%	16%	3%	2014	8
West Dorset	1,258	5%	8%	5%	6%	n/s	7%	12%	5%	12%	3%	2014	7
Stafford	1,256	n/s	7%	5%	9%	4%	12%	10%	8%	12%	3%	2012	7
Preston	1,252	3%	6%	n/s	12%	6%	12%	9%	5%	12%	3%	2008	7
Richmond upon Thames	1,251	3%	n/s	5%	n/s	6%	9%	19%	n/s	19%	3%	2014	5
The Vale of Glamorgan	1,245	5%	4%	4%	6%	3%	10%	10%	4%	10%	3%	2012	8
Amber Valley	1,245	13%	6%	7%	9%	4%	7%	11%	n/s	13%	3%	2002	7
Haringey	1,242	6%	7%	4%	3%	7%	3%	11%	n/s	11%	3%	2014	7
Stratford-on-Avon	1,231	n/s	8%	7%	n/s	8%	11%	15%	12%	15%	3%	2014	6
Epping Forest	1,229	5%	8%	3%	7%	5%	5%	21%	6%	21%	3%	2014	8
Dover	1,226	n/s	8%	4%	6%	7%	7%	9%	18%	9%	3%	2014	7
Wycombe	1,226	5%	4%	4%	5%	12%	8%	13%	4%	13%	3%	2014	8
Camden	1,225	n/s	5%	n/s	n/s	4%	6%	11%	3%	11%	3%	2014	5
Swale	1,224	3%	7%	9%	6%	5%	11%	13%	8%	13%	3%	2014	8
North Hertfordshire	1,218	n/s	6%	5%	11%	12%	5%	13%	11%	13%	3%	2014	7
South Lakeland	1,211	n/s	10%	8%	10%	6%	n/s	n/s	15%	10%	3%	2008	5
Taunton Deane	1,208	6%	9%	12%	7%	n/s	8%	18%	9%	18%	3%	2014	7
Ashfield	1,207	6%	n/s	4%	n/s	11%	6%	15%	n/s	15%	3%	2014	5
Shepway	1,204	9%	7%	n/s	5%	5%	8%	13%	n/s	13%	3%	2014	6
Horsham	1,194	4%	3%	9%	4%	5%	10%	17%	5%	17%	3%	2014	8
Windsor & Maidenhead	1,194	n/s	5%	4%	15%	8%	7%	10%	15%	15%	3%	2008	7
Basingstoke & Deane	1,192	9%	n/s	7%	10%	12%	5%	16%	8%	16%	3%	2014	7
Halton	1,184	n/s	5%	4%	7%	5%	10%	12%	9%	12%	3%	2014	7
Denbighshire	1,180	8%	8%	n/s	7%	n/s	9%	9%	15%	13%	3%	2014	6
South Norfolk	1,179	n/s	8%	11%	11%	5%	3%	17%	18%	17%	3%	2014	7
Dacorum	1,178	n/s	6%	n/s	8%	9%	11%	11%	18%	11%	3%	2012	6

sNuneaton & Bedworth	1,177	7%	12%	9%	7%	5%	10%	20%	n/s	20%	3%	2014	7
Sedgemoor	1,176	11%	15%	n/s	13%	5%	12%	14%	8%	15%	3%	2004	7
Thurrock	1,174	7%	n/s	8%	4%	6%	7%	7%	16%	8%	3%	2006	7
Westminster	1,173	7%	11%	4%	4%	8%	5%	12%	n/s	12%	3%	2014	7
Bassetlaw	1,173	n/s	3%	5%	5%	6%	10%	10%	n/s	10%	3%	2014	6
Newark & Sherwood	1,165	n/s	5%	6%	6%	6%	6%	16%	11%	16%	3%	2014	7
Stroud	1,165	6%	5%	8%	6%	4%	13%	7%	20%	17%	3%	2012	8
Warwick	1,163	8%	5%	5%	10%	6%	8%	8%	7%	10%	3%	2008	8
Non-residents of England & Wales	1,160	n/s	3%	3%	10%	6%	6%	8%	5%	10%	3%	2008	7
Ipswich	1,155	5%	n/s	4%	5%	6%	9%	14%	n/s	14%	3%	2014	6
Waverley	1,152	6%	4%	n/s	7%	6%	8%	14%	6%	14%	3%	2014	7
Hackney	1,142	6%	7%	14%	4%	n/s	5%	16%	n/s	16%	3%	2014	6
Chesterfield	1,140	11%	10%	n/s	4%	6%	6%	13%	8%	13%	3%	2014	7
Tower Hamlets	1,139	9%	8%	11%	4%	3%	5%	11%	n/s	11%	3%	2006	7
South Oxfordshire	1,139	n/s	4%	n/s	5%	9%	9%	12%	10%	12%	3%	2014	6
Wychavon	1,133	9%	10%	4%	4%	10%	9%	10%	9%	10%	3%	2014	8
West Berkshire	1,128	9%	6%	n/s	6%	8%	14%	11%	13%	14%	3%	2012	7
West Lancashire	1,128	n/s	8%	4%	4%	3%	12%	13%	10%	13%	3%	2014	7
Islington	1,128	n/s	4%	4%	7%	n/s	4%	12%	5%	12%	3%	2014	6
Carlisle	1,126	6%	5%	5%	8%	3%	9%	14%	18%	14%	3%	2014	8
Great Yarmouth	1,124	n/s	9%	n/s	8%	7%	8%	9%	13%	13%	3%	2004	6
Norwich	1,117	8%	6%	n/s	9%	4%	4%	11%	n/s	11%	3%	2014	6
Kingston upon Thames	1,114	n/s	6%	n/s	n/s	n/s	13%	18%	4%	18%	3%	2014	4
Gedling	1,111	11%	6%	10%	5%	n/s	15%	18%	6%	18%	3%	2014	7
Cherwell	1,106	n/s	8%	7%	10%	n/s	11%	12%	11%	12%	3%	2014	6
South Staffordshire	1,103	11%	6%	7%	7%	n/s	14%	13%	12%	14%	3%	2012	7
Allerdale	1,102	5%	6%	6%	4%	5%	7%	16%	11%	16%	3%	2014	8
Darlington	1,095	n/s	13%	5%	8%	n/s	9%	12%	n/s	13%	3%	2004	5
Elmbridge	1,092	n/s	5%	10%	11%	6%	8%	12%	11%	12%	3%	2014	7
Reading	1,090	4%	6%	5%	11%	n/s	11%	7%	20%	14%	3%	2012	7
Erewash	1,088	n/s	4%	10%	n/s	6%	13%	8%	10%	13%	3%	2012	6
Mendip	1,086	11%	5%	4%	9%	8%	10%	16%	n/s	16%	3%	2014	7
East Hampshire	1,085	4%	10%	9%	7%	9%	10%	6%	14%	11%	3%	2004	8
South Cambridgeshire	1,077	6%	5%	n/s	11%	n/s	15%	13%	10%	15%	3%	2012	6
Lewes	1,075	8%	n/s	n/s	4%	9%	11%	13%	5%	13%	3%	2014	6
North East Derbyshire	1,074	7%	8%	5%	6%	9%	5%	17%	22%	17%	3%	2014	8
Cheltenham	1,073	11%	10%	9%	4%	n/s	8%	10%	11%	11%	3%	2002	7
Fareham	1,071	n/s	4%	4%	11%	8%	8%	7%	13%	13%	3%	2008	7
North Devon	1,062	12%	11%	6%	7%	8%	10%	15%	17%	15%	3%	2014	8
East Staffordshire	1,058	4%	10%	8%	6%	8%	13%	10%	n/s	13%	3%	2012	7
St Albans	1,057	6%	9%	n/s	6%	3%	5%	20%	14%	20%	3%	2014	7
Mansfield	1,051	4%	11%	n/s	5%	n/s	10%	15%	19%	16%	3%	2014	6
Wokingham	1,051	n/s	5%	10%	6%	8%	14%	7%	7%	14%	3%	2012	7
Broxtowe	1,048	8%	7%	5%	4%	10%	6%	19%	14%	19%	3%	2014	8
North Kesteven	1,046	10%	7%	8%	9%	10%	10%	15%	12%	15%	3%	2014	8

Winchester	1,038	7%	12%	7%	7%	n/s	8%	15%	n/s	15%	3%	2014	6
Fenland	1,038	10%	11%	6%	8%	n/s	5%	9%	12%	12%	3%	2004	7
Gloucester	1,038	8%	9%	6%	8%	7%	8%	9%	16%	9%	3%	2014	8
Staffordshire Moorlands	1,038	7%	5%	n/s	9%	4%	12%	8%	17%	12%	3%	2012	7
Exeter	1,034	4%	6%	6%	7%	5%	8%	14%	7%	14%	3%	2014	8
East Dorset	1,030	4%	9%	n/s	9%	4%	7%	16%	10%	16%	3%	2014	7
Wyre Forest	1,029	n/s	7%	10%	6%	11%	12%	9%	16%	12%	3%	2012	7
East Hertfordshire	1,024	5%	7%	5%	11%	12%	14%	19%	6%	19%	3%	2014	8
Hastings	1,016	4%	9%	12%	5%	6%	4%	15%	12%	15%	3%	2014	8
Guildford	1,014	12%	16%	n/s	9%	4%	10%	8%	10%	16%	3%	2004	7
Test Valley	1,013	n/s	4%	10%	4%	n/s	11%	9%	9%	11%	3%	2012	6
Bromsgrove	1,013	7%	8%	8%	6%	7%	19%	11%	n/s	19%	3%	2012	7
Fylde	1,010	n/s	n/s	n/s	5%	6%	11%	9%	11%	11%	3%	2012	5
Sevenoaks	1,008	9%	n/s	11%	13%	3%	6%	11%	n/s	13%	3%	2008	6
Eastleigh	1,007	10%	7%	11%	7%	6%	16%	7%	5%	16%	3%	2012	8
Vale of White Horse	999	13%	11%	11%	9%	12%	11%	11%	7%	13%	3%	2002	8
South Holland	993	n/s	10%	11%	5%	n/s	10%	11%	16%	16%	3%	2016	6
Lichfield	991	6%	n/s	n/s	9%	11%	12%	n/s	8%	12%	3%	2012	5
Rushcliffe	989	n/s	8%	5%	9%	5%	7%	12%	4%	12%	3%	2014	7
Chorley	988	n/s	8%	6%	15%	7%	5%	8%	13%	15%	3%	2008	7
Hartlepool	984	5%	9%	8%	4%	8%	5%	25%	n/s	25%	3%	2014	7
South Ribble	980	6%	12%	9%	9%	12%	7%	10%	12%	12%	3%	2004	8
Tunbridge Wells	975	7%	4%	7%	10%	5%	12%	13%	13%	13%	3%	2014	8
Oxford	973	9%	10%	5%	4%	7%	6%	8%	n/s	10%	3%	2004	7
Ashford	971	11%	9%	n/s	9%	8%	13%	17%	6%	17%	3%	2014	7
St Edmundsbury	969	4%	5%	n/s	6%	5%	14%	13%	10%	14%	3%	2012	7
Torfaen	961	n/s	7%	13%	13%	4%	13%	11%	18%	18%	3%	2016	7
Burnley	950	7%	10%	12%	8%	9%	11%	9%	4%	12%	3%	2006	8
West Oxfordshire	949	13%	11%	n/s	12%	13%	9%	5%	8%	13%	3%	2002	7
Hammersmith & Fulham	948	8%	4%	11%	7%	6%	4%	18%	n/s	18%	3%	2014	7
Hinckley & Bosworth	947	6%	11%	n/s	n/s	7%	11%	19%	n/s	19%	3%	2014	5
Malvern Hills	941	7%	6%	n/s	9%	10%	7%	14%	15%	15%	3%	2016	7
Tonbridge & Malling	932	4%	7%	4%	6%	11%	5%	15%	7%	15%	3%	2014	8
Castle Point	932	13%	4%	8%	9%	10%	11%	12%	n/s	13%	3%	2002	7
Hertsmere	930	8%	5%	5%	6%	4%	13%	15%	4%	15%	3%	2014	8
Welwyn Hatfield	919	4%	5%	13%	7%	6%	4%	17%	14%	17%	3%	2014	8
South Hams	916	7%	9%	7%	9%	9%	8%	13%	n/s	13%	3%	2014	7
West Lindsey	908	7%	13%	n/s	8%	15%	6%	16%	5%	16%	3%	2014	7
Monmouthshire	903	n/s	4%	9%	n/s	9%	10%	11%	9%	11%	3%	2014	6
Babergh	896	n/s	13%	8%	8%	n/s	9%	16%	16%	16%	3%	2014	6
Rugby	895	9%	11%	n/s	11%	5%	10%	19%	8%	19%	3%	2014	7
Mid Suffolk	878	7%	4%	5%	12%	7%	21%	13%	20%	21%	3%	2012	8
Cotswold	870	9%	8%	6%	5%	n/s	9%	8%	12%	12%	3%	2012	7
Gravesham	867	9%	9%	7%	n/s	n/s/	13%	7%	18%	18%	3%	2016	6
North West Leicestershire	864	10%	13%	5%	10%	4%	9%	8%	8%	13%	3%	2004	8

Pendle	862	8%	6%	n/s	13%	5%	7%	8%	23%	23%	3%	2016	7
Cannock Chase	861	11%	11%	n/s	10%	4%	12%	15%	n/s	15%	3%	2014	6
Cambridge	860	4%	9%	9%	5%	n/s	18%	13%	n/s	18%	3%	2012	6
Kensington & Chelsea	857	n/s	n/s	6%	6%	n/s	6%	11%	8%	11%	3%	2014	5
Lincoln	856	7%	7%	4%	n/s	7%	8%	17%	6%	17%	3%	2014	7
Forest of Dean	856	9%	n/s	13%	7%	6%	9%	12%	16%	16%	3%	2016	7
High Peak	853	9%	8%	n/s	8%	7%	5%	14%	21%	21%	3%	2016	7
Bolsover	851	7%	8%	4%	11%	4%	8%	11%	7%	11%	3%	2014	8
Spelthorne	843	9%	10%	13%	7%	17%	7%	18%	10%	18%	3%	2014	8
Hyndburn	842	n/s	6%	6%	12%	6%	15%	14%	9%	15%	3%	2012	7
Mole Valley	839	4%	8%	8%	11%	7%	6%	11%	14%	14%	3%	2016	8
Dartford	837	11%	9%	6%	9%	5%	8%	23%	8%	23%	3%	2014	8
Kettering	836	12%	8%	n/s	10%	7%	11%	13%	9%	13%	3%	2014	7
Hambleton	834	6%	10%	n/s	11%	8%	9%	9%	8%	11%	3%	2008	7
Blaenau Gwent	831	10%	12%	9%	n/s	9%	9%	8%	12%	12%	3%	2004	7
Worcester	813	n/s	9%	10%	8%	7%	10%	14%	7%	14%	4%	2014	7
Slough	811	n/s	11%	11%	n/s	9%	6%	12%	15%	15%	4%	2014	6
Isle of Anglesey	798	7%	8%	n/s/	13%	9%	13%	11%	n/s	13%	4%	2008	6
South Derbyshire	795	7%	5%	10%	12%	5%	18%	19%	n/s	19%	4%	2014	7
Tewkesbury	795	6%	7%	4%	9%	11%	7%	7%	18%	18%	4%	2016	8
Gosport	792	6%	7%	4%	12%	5%	9%	7%	n/s	12%	4%	2008	7
Tandridge	781	5%	9%	9%	10%	5%	16%	n/s	10%	16%	4%	2012	7
Chiltern	780	7%	12%	12%	7%	6%	8%	14%	n/s	14%	4%	2014	7
East Northamptonshire	779	5%	10%	n/s	10%	7%	5%	21%	18%	21%	4%	2014	7
Derbyshire Dales	772	8%	15%	10%	11%	6%	8%	13%	n/s	15%	4%	2004	7
Barrow-in-Furness	770	6%	8%	9%	n/s	12%	12%	12%	25%	12%	4%	2014	7
Three Rivers	768	8%	10%	7%	n/s	12%	10%	16%	13%	16%	4%	2014	7
Blaby	765	10%	13%	8%	5%	7%	12%	9%	18%	18%	4%	2004	8
Ceredigion	760	9%	11%	n/s	6%	6%	11%	19%	n/s	19%	4%	2014	6
Rochford	756	10%	4%	8%	13%	9%	10%	13%	24%	13%	4%	2014	8
Crawley	752	17%	8%	n/s	10%	7%	8%	6%	14%	17%	4%	2002	7
Woking	752	5%	5%	11%	n/s	13%	6%	4%	22%	22%	4%	2016	7
Copeland	748	7%	7%	7%	7%	11%	12%	10%	13%	13%	4%	2016	8
Weymouth & Portland	743	7%	n/s	8%	13%	7%	6%	13%	18%	18%	4%	2016	7
Torridge	738	5%	6%	12%	11%	14%	10%	10%	6%	14%	4%	2010	8
Adur	732	9%	8%	9%	8%	5%	13%	12%	n/s	13%	4%	2012	7
Mid Devon	731	n/s	6%	n/s	10%	8%	5%	17%	6%	17%	4%	2014	6
Harborough	728	n/s	7%	10%	6%	5%	13%	12%	5%	13%	4%	2012	7
Selby	719	5%	6%	15%	n/s	15%	11%	13%	17%	17%	4%	2016	7
Bracknell Forest	714	n/s	9%	n/s	8%	7%	9%	12%	12%	12%	4%	2014	6
Broxbourne	702	7%	9%	6%	n/s	11%	10%	16%	6%	16%	4%	2014	7
Brentwood	699	8%	5%	6%	11%	13%	9%	16%	8%	16%	4%	2014	8
Boston	699	n/s	5%	11%	14%	n/s	13%	13%	15%	15%	4%	2016	6
Runnymede	699	6%	n/s	n/s	12%	7%	7%	22%	18%	22%	4%	2014	6
Watford	692	n/s	n/s	10%	n/s	8%	12%	20%	17%	20%	4%	2014	5

Surrey Heath	677	n/s	5%	9%	10%	16%	9%	7%	18%	18%	4%	2016	7
Stevenage	672	13%	12%	8%	8%	6%	14%	16%	9%	16%	4%	2014	8
East Cambridgeshire	667	10%	12%	9%	8%	8%	8%	17%	n/s	17%	4%	2014	7
Rossendale	663	7%	10%	9%	13%	8%	5%	18%	8%	18%	4%	2014	8
Rushmoor	663	8%	5%	8%	12%	7%	11%	10%	10%	12%	4%	2008	8
South Northamptonshire	660	7%	11%	10%	14%	n/s	8%	18%	15%	18%	4%	2014	7
Harlow	658	6%	11%	7%	7%	9%	13%	18%	15%	18%	4%	2014	8
North Dorset	658	6%	10%	5%	9%	7%	11%	22%	17%	22%	4%	2014	8
Christchurch	657	5%	8%	5%	6%	10%	10%	12%	15%	15%	4%	2016	8
Wellingborough	652	12%	7%	5%	7%	n/s	12%	12%	14%	14%	4%	2016	7
Redditch	642	12%	13%	n/s	6%	12%	12%	11%	20%	20%	4%	2016	7
Uttlesford	640	n/s	10%	5%	n/s	15%	10%	15%	12%	15%	4%	2010	6
Daventry	640	5%	9%	13%	5%	8%	13%	5%	5%	13%	4%	2012	8
North Warwickshire	627	8%	9%	6%	8%	10%	10%	19%	12%	19%	4%	2014	8
Merthyr Tydfil	622	6%	8%	11%	11%	6%	8%	7%	19%	19%	4%	2016	8
Craven	617	8%	12%	10%	7%	5%	9%	9%	12%	12%	4%	2004	8
South Bucks	615	n/s	13%	n/s	10%	5%	12%	22%	17%	22%	4%	2014	6
Maldon	596	11%	13%	14%	11%	8%	13%	18%	11%	18%	4%	2014	8
Hart	595	9%	11%	12%	15%	10%	11%	10%	10%	15%	4%	2008	8
Epsom & Ewell	590	8%	8%	8%	7%	9%	7%	10%	7%	10%	4%	2014	8
Ryedale	580	10%	11%	16%	14%	10%	15%	17%	10%	17%	4%	2014	8
Tamworth	575	6%	6%	6%	7%	7%	8%	8%	11%	11%	4%	2016	8
West Devon	574	n/s	7%	10%	12%	8%	14%	13%	6%	14%	4%	2012	7
Ribble Valley	565	n/s	17%	5%	23%	14%	n/s	13%	27%	27%	4%	2016	6
Oadby & Wigston	554	16%	13%	9%	10%	10%	9%	11%	n/s	16%	4%	2002	7
Eden	535	20%	9%	9%	7%	16%	15%	18%	n/s	20%	4%	2002	7
Corby	519	6%	13%	11%	14%	8%	15%	10%	5%	15%	4%	2012	8
Forest Heath	492	13%	n/s	13%	14%	n/s	11%	11%	10%	14%	5%	2008	6
Purbeck	488	10%	7%	10%	12%	n/s	20%	16%	6%	20%	5%	2012	7
West Somerset	481	7%	n/s	12%	12%	9%	11%	28%	n/s	28%	5%	2014	6
Melton	452	10%	19%	6%	16%	13%	8%	7%	8%	19%	5%	2004	8
Richmondshire	445	n/s	13%	12%	12%	14%	n/s	13%	9%	14%	5%	2010	6
Rutland	330	9%	9%	13%	13%	7%	15%	23%	n/s	23%	6%	2014	7
City of London	40	51%	n/s	51%	n/s	30%	20%	56%	29%	56%	16%	2014	6
Isles of Scilly	20	45%	40%	89%	64%	54%	45%	64%	n/s	89%	22%	2006	7

References

1. Jones R (2016) The unprecedented growth in medical admissions in the UK: the ageing population or a possible infectious/ immune aetiology? Epidemiology (Sunnyvale) 6(1): 1000219. http://dx.doi.org/10.4172/2161-1165.1000219
2. Jones R (2016) Rising emergency admissions in the UK and the elephant in the room. Epidemiology (Sunnyvale): Open Access 6(4): 1000261. doi: 10.4172/2161-1165.1000261
3. Jones R (2015) Are emergency admissions contagious? Brit J Healthc Manage 21(5): 227-235.
4. Jones R (2017) Outbreaks of a Presumed Infectious Agent Associated with Changes in Fertility, Stillbirth, Congenital Abnormalities and the Gender Ratio at Birth. British Journal of Medicine and Medical Research 20(8): 1-36. doi: 10.9734/ BJMMR/2017/32372
5. Jones R (2016) Unusual trends in NHS staff sickness absence. BJHCM 22(4): 239-240.
6. Jones R (2015) A previously uncharacterized infectious-like event leading to spatial spread of deaths across England and Wales: Characteristics of the most recent event and a time series for past events. British Journal of Medicine and Medical Research 5(11): 1361-1380. doi: 10.9734/BJMMR/2015/14285
7. Jones R (2015) Recurring Outbreaks of an Infection Apparently Targeting Immune Function, and Consequent Unprecedented Growth in Medical Admission and Costs in the United Kingdom: A Review. British Journal of Medicine and Medical Research 6(8): 735-770. doi: 10.9734/BJMMR/2015/14845
8. Jones R (2015) A time series of infectious-like events in Australia between 2000 and 2013 leading to extended periods of increased deaths (all-cause mortality) with possible links to increased hospital medical admissions. International Journal of Epidemiologic Research 2(2): 53-67. http://ijer.skums.ac.ir/ article_12869_2023.html
9. Jones R (2015) Deaths and international health care expenditure. Brit J Healthc Manage 21(10): 491-493.
10. Jones R (2015) Simulated rectangular wave infectious-like events replicate the diversity of time-profiles observed in real-world running 12 month totals of admissions or deaths. Fractal geometry and Nonlinear Analysis in Medicine and Biology 1 (3): 78-79. doi: 10.15761/FGNAMB.1000114
11. Jones R (2016) Deaths in English Lower Super Output Areas (LSOA) show patterns of very large shifts indicative of a novel recurring infectious event. SMU Medical Journal 3(2): 23-36.
12. Jones R (2016) A regular series of unexpected and large increases in total deaths (all-cause mortality) for male and female residents of mid super output areas (MSOA) in England and Wales: How high level analysis can miss the contribution from complex small-area spatial spread of a presumed infectious agent. Fractal Geometry and Nonlinear Analysis in Medicine and Biology 2(2): 1-13.
13. Jones R (2017) Year-to-year variation in deaths in English Output Areas (OA), and the interaction between a presumed infectious agent and influenza in 2015. SMU Medical Journal 4(2): in press
14. Loopstra R, McKee M, Katikireddi S, et al (2016) Austerity and old-age mortality in England: a longitudinal cross-local area analysis, 2007-2013. J Roy Soc Med 109(3):109-116.
15. Green M, Dorling D, Minton J (2017) The geography of a rapid rise in elderly mortality in England and Wales, 2014-2015. Health & Place 44: 77-85.
16. Hiam l, Dorling D, Harrison D, McKee M (2017a) Why has mortality in England and Wales been increasing? An iterative demographic analysis. JRSM x: xx-xx. 110(4): 153-162.
17. Hiam l, Dorling D, Harrison D, McKee M (2017b) What caused the spike in mortality in England and Wales in January 2015? JRSM x: xx-xx. - 110(4): 131-137.
18. Jones R (2016) A presumed infectious event in England and Wales during 2014 and 2015 leading to higher deaths in those with neurological and other disorders. Journal of Neuroinfectious Diseases 7(1): 1000213 doi: 10.4172/2314-7326.1000213
19. Jones R (2016) Is cytomegalovirus involved in recurring periods of higher than expected death and medical admissions, occurring as clustered outbreaks in the northern and southern hemispheres? British Journal of Medicine and Medical Research 11(2): 1-31. doi: 10.9734/BJMMR/2016/20062
20. Jones R (2017) Role of social group and gender in outbreaks of a novel agent leading to increased deaths, with insights into higher international deaths in 2015. Fractal Geometry and Nonlinear Analysis in Medicine and Biology 3(1): in press.

Contact Us:

SIFT DESK

Deerpark Dr, #75, Fullerton,CA,92831,United States.

E-mail: helpdesk@siftdesk.org

Visit us on the web at: **www.siftdesk.org**