

Staphylococcus aureus Blood Stream Infection (Bacteraemia)
Surveillance

All Wales Data per 100,000 Bed Days

Commentary

- Data have been received from all Health Boards in Wales.
- Surveillance started in Powys Local Health Board in April 11. Powys data has been included in the aggregate and trend from this date.
- SPC charts have been provided for all Health Boards except Betsi Cadwaladr University Health Board and Powys Health Board; data is currently not available for a sufficient period for these sites.
- Bed days for Jan-Mar 12 have been used as a proxy for Jan-Mar 13.
- Data for the year up to 31/03/13 show that 889 *Staphylococcus aureus* bacteraemias were reported (increased from 850 the year up to 31/03/12) and the overall rate of *Staphylococcus aureus* bacteraemias in Wales was 24 per 100,000 bed days. This rate is higher than for the year up to 31/03/12 (23 per 100,000 bed days).
- 161 MRSA bacteraemias were reported for the year up to 31/03/13 (decreased from 199 the year up to 31/03/12). The MRSA rate for the year up to 31/03/13 in Wales was 4 per 100,000 bed days. This rate is lower than for the year up to 31/03/12 (5 per 100,000 bed days).
- 728 MSSA bacteraemias were reported for the year up to 31/03/13 (increased from 651 the year up to 31/03/12). The MSSA rate for the year up to 31/03/13 in Wales was 20 per 100,000 bed days. This rate is higher than for the year up to 31/03/12 (18 per 100,000 bed days).
- SPC charts use upper and lower control limits to indicate the range in rates that would be expected as a result of natural variation. These control limits can be reset when there has been a significant change in the data. Because of the reduction in the rates of MRSA bacteraemia in Wales over time the control limits have been reset to reflect these lower rates. The markers that have been used to identify significant changes in rates are 8 consecutive points below the overall centre line or 12/14 consecutive points below the overall centre line. For Wales as a whole for MRSA bacteraemias the split was made from the Oct to Dec 08 quarter and then because of further reductions another split from Jul to Sep 10. For individual Health Boards and hospitals splits have been made according to when either of the criteria has been met. For some sites no splits have been made, but splits will be made in the future if either criterion has been met.

Rates of *Staphylococcus aureus* Blood Stream Infections per 100,000 bed days

For the *Staphylococcus aureus* blood stream infection (bacteraemia) surveillance scheme, rates produced for reports have historically used 1,000 bed days as the standard comparison denominator. However, the Top Ten Blood Stream Infection (bacteraemia) surveillance uses 100,000 bed days as the standard comparison denominator. To allow comparisons between the two schemes, the *S. aureus* data published for each Health Board has been recalculated to be per 100,000 bed days. However to allow comparison with the English scheme, which is presented per 10,000 bed days please divide the Welsh figures by 10.

All Wales Annual Data: 01/10/11 – 31/03/13

	Blood Culture Sets Taken (BCS)	Positive Blood Cultures (PBS)*	Total <i>S. aureus</i>	MRSA	Bed days	% of BCS that are MRSA	% of PBS that are MRSA	% of <i>S. aureus</i> that are MRSA	BCS / 100,000 bed days	PBS/ 100,000 bed days	Total <i>S. aureus</i> / 100,000 bed days	MRSA/ 100,000 bed days
Total	95674	11796	889	161	3652278	0.17	1.36	18.11	2620	323	24	4
Min	93	6	1	0	13991	0.00	0.00	0.00	131	8	1	0
Max	19378	2561	196	49	763004	0.28	2.06	29.34	6411	562	50	7
Mean	11959.3	1474.5	111.1	20.1	456535	0.13	1.06	13.88	2872	298	25	3
Median	14692.5	1663	125.5	21	504369	0.15	1.15	14.73	2426	317	24	4

*Including duplicates and contaminants.

All Wales Quarterly Trend Data: 01/04/01 – 31/03/13

Quarter	Quarter no	MRSA	MSSA	Total <i>S. aureus</i>	Bed days	MRSA/100,000 bed days	MSSA/100,000 bed days	SA/100,000 bed days
Apr 01 - Jun 01	1	110	164	274	1029087	11	16	27
Jul 01 - Sep 01	2	97	159	256	1018970	10	16	25
Oct 01 - Dec 01	3	136	168	304	1040908	13	16	29
Jan 02 - Mar 02	4	123	153	276	1072739	11	14	26
Apr 02 - Jun 02	5	115	153	268	1045924	11	15	26
Jul 02 - Sep 02	6	127	178	305	1033039	12	17	30
Oct 02 - Dec 02	7	121	155	276	1029996	12	15	27
Jan 03 - Mar 03	8	123	175	298	1074792	11	16	28
Apr 03 - Jun 03	9	119	156	275	1052235	11	15	26
Jul 03 - Sep 03	10	115	164	279	1029986	11	16	27
Oct 03 - Dec 03	11	120	142	262	1039490	12	14	25
Jan 04 - Mar 04	12	135	165	300	1069041	13	15	28
Apr 04 - Jun 04	13	122	174	296	1038283	12	17	29
Jul 04 - Sep 04	14	100	166	266	1018268	10	16	26
Oct 04 - Dec 04	15	105	198	303	1016563	10	19	30
Jan 05 - Mar 05	16	112	142	254	1067149	10	13	24
Apr 05 - Jun 05	17	107	165	272	1033184	10	16	26
Jul 05 - Sep 05	18	95	159	254	996746	10	16	25
Oct 05 - Dec 05	19	93	166	259	1015183	9	16	26
Jan 06 - Mar 06	20	95	159	254	1035274	9	15	25
Apr 06 - Jun 06	21	86	176	262	1017182	8	17	26
Jul 06 - Sep 06	22	73	164	237	993953	7	16	24
Oct 06 - Dec 06	23	87	183	270	988600	9	19	27
Jan 07 - Mar 07	24	73	151	224	1009656	7	15	22
Apr 07 - Jun 07	25	89	162	251	991846	9	16	25
Jul 07 - Sep 07	26	104	169	273	979965	11	17	28
Oct 07 - Dec 07	27	97	176	273	975178	10	18	28
Jan 08 - Mar 08	28	84	128	212	996078	8	13	21
Apr 08 - Jun 08	29	89	170	259	961606	9	18	27
Jul 08 - Sep 08	30	88	159	247	956329	9	17	26
Oct 08 - Dec 08	31	83	181	264	962943	9	19	27
Jan 09 - Mar 09	32	80	168	248	977028	8	17	25
Apr 09 - Jun 09	33	65	163	228	933036	7	17	24
Jul 09 - Sep 09	34	56	172	228	910624	6	19	25
Oct 09 - Dec 09	35	85	178	263	921750	9	19	29
Jan 10 - Mar 10	36	68	171	239	956390	7	18	25

All Wales Quarterly Trend Data: 01/04/01 – 31/03/13 cont...

Quarter	Quarter no	MRSA	MSSA	Total <i>S. aureus</i>	Bed days	MRSA/100,000 bed days	MSSA/100,000 bed days	SA/100,000 bed days
Apr 10 - Jun 10	37	70	166	236	933293	8	18	25
Jul 10 - Sep 10	38	49	159	208	904578	5	18	23
Oct 10 - Dec 10	39	42	168	210	909940	5	18	23
Jan 11 - Mar 11	40	57	166	223	933547	6	18	24
Apr - Jun 11*	41	52	172	224	914576	6	19	24
Jul - Sep 11	42	41	145	186	900138	5	16	21
Oct - Dec 11	43	53	178	231	907567	6	20	25
Jan - Mar 12	44	53	156	209	950589	6	16	22
Apr - Jun 12	45	47	160	207	917565	5	17	23
Jul - Sep 12	46	42	185	227	890497	5	21	25
Oct - Dec 12	47	38	200	238	893628	4	22	27
Jan - Mar 13**	48	34	183	217	950589	4	19	23

* Powys Teaching Health Board figures are included in the all Wales quarterly trend data from April 2011.

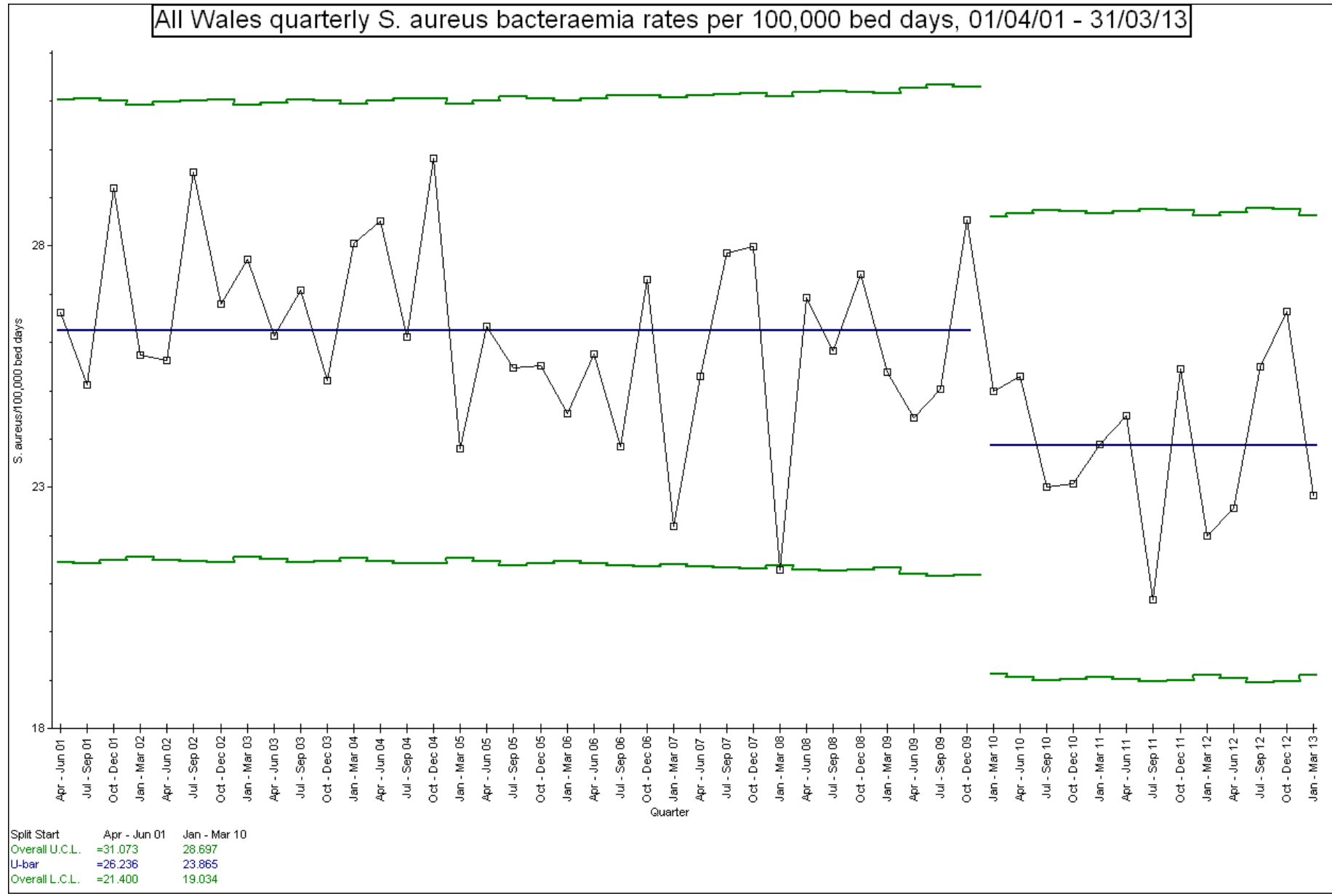
**Jan-Mar 2012 bed days used as a proxy for Jan-Mar 2013.

All Wales Statistical Process Control Charts for Rates of *S. aureus* Blood Stream Infections per 100,000 Bed Days

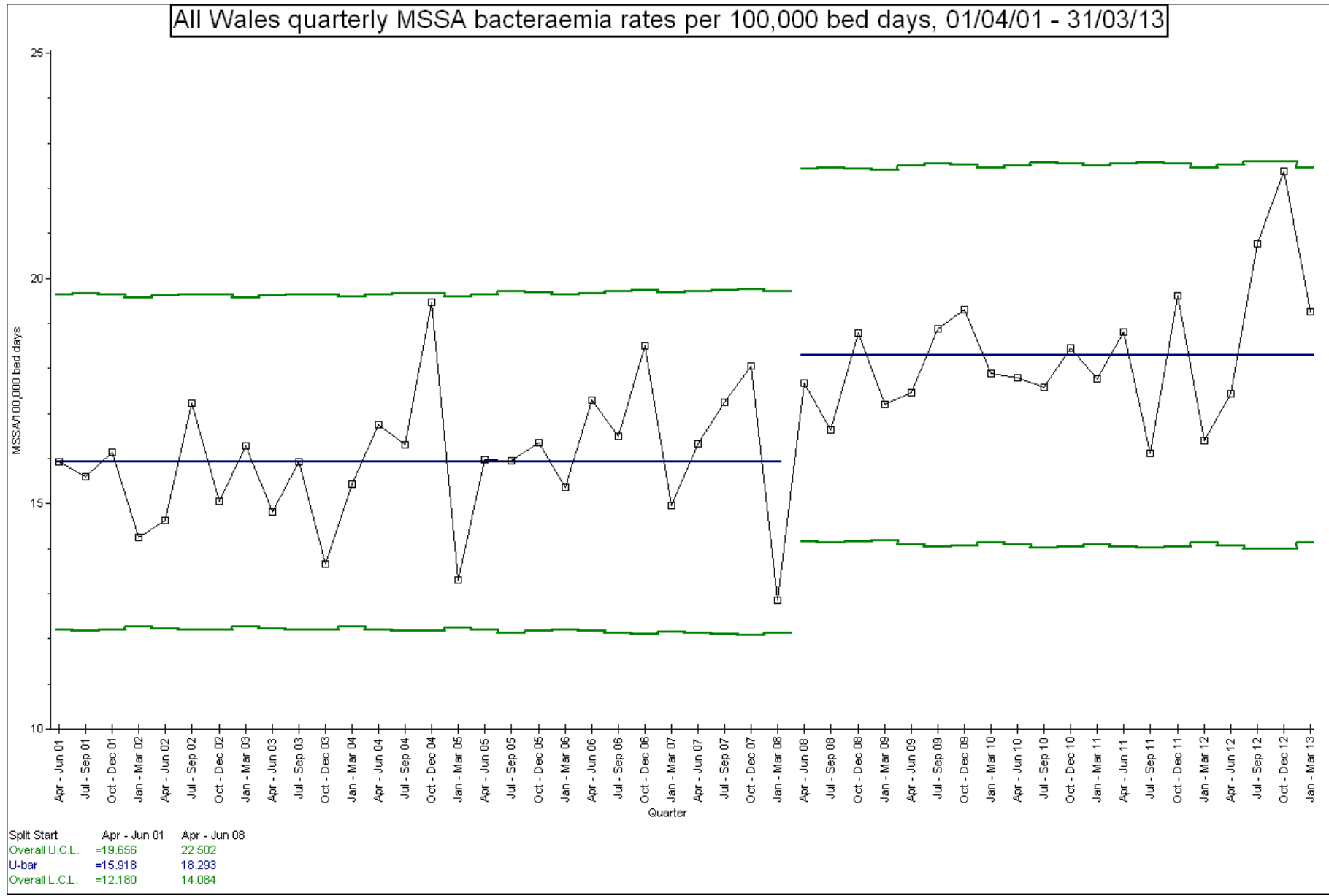
Data from the *Staphylococcus aureus* blood stream infection (bacteraemia) surveillance are used to produce statistical process control (SPC) charts. These compare a Health Board's rate of infection with calculated upper and lower control limits, which allow natural variation in rates to be distinguished from situations where something unusual is occurring. SPC charts are used to compare rates within a Health Board over time and between equivalent Health Boards at a given point in time. Health Boards are asked to investigate if their rates fall outside the control limits of the SPC charts. More information about the statistical analyses performed on the *S. aureus* data and what the results mean is provided in the section on the *S. aureus* Blood Stream Infections surveillance scheme.

The reductions in MRSA in Wales have resulted in the control limits being recalculated for the SPC charts. The new control limits have been put in place for Wales as a whole from January 2008. Because of the recalculated control limits it is no longer possible to provide the 1 and 2 SD lines on the control charts.

SPC Chart for Quarterly *S. aureus* Blood Stream (Bacteraemia) Rates: 01/04/01 – 31/03/13



SPC Chart for Quarterly MSSA Blood Stream (Bacteraemia) Rates: 01/04/01 – 31/03/13



SPC Chart for Quarterly MRSA Blood Stream (Bacteraemia) Rates: 01/04/01 – 31/03/13

