Ultrasound examination lengths survey analysis

Executive Summary

In February and March 2012, the Society and College of Radiographers (SCoR) surveyed sonographers in the UK about the length of ultrasound examinations. Nearly 450 respondents answered a range of questions in an online questionnaire. This document presents an analysis of this survey and the following bullet points highlight the main findings:

- Respondents were asked to consider a list of standard ultrasound examinations and say, for each, how long their unit allowed and what they considered the ideal examination length. In eight out the nineteen examinations, half or more of respondents have 'allowed' examination lengths less than the overall modal 'ideal' examination length.
- Respondents commented that actual examination lengths vary depending on the individual patient circumstances; planning can be affected by late additions of urgent patients; and that time pressure can exacerbate the issue of work-related musculo-skeletal disorders (WRMSDs) in sonographers.
- The majority of respondents (75%) say that no extra time is allowed in their unit for teaching. However, in units where extra time is allowed, they normally allow 10 minutes extra time for teaching per case. A large number of respondents commented that sonographers should be allowed additional time for teaching.
- 49% of respondents have seen no change to examination lengths in their units over the last two years; 30% have seen an increase in examination lengths; and 21% have seen a decrease. The main reasons for changes are pressure to increase the number of patients seen; changes in procedures; Fetal anomaly screening programme (FASP) guidelines; and in response to increasing WRMSDs in sonographers.
- When asked for their general comments, the main concerns raised by respondents centre around mounting expectations of ultrasound services, and a focus on targets, increasing the pressure / stress on staff and having a negative impact on service quality.

Contents

1. Introduction

This document presents an analysis of an online survey of the sonographer workforce in the UK by SCoR in February and March 2012. The purpose of the survey was to gather data on the length of standard ultrasound examinations.

We identified 1518 sonographers from SCoR membership and public voluntary register of sonographers' database and emailed to ask if they would complete the online questionnaire. The questionnaire was answered by 446 (29% response rate) which is considered a good response rate for online surveys. Not all respondents answered every question, so some questions have different response rates.

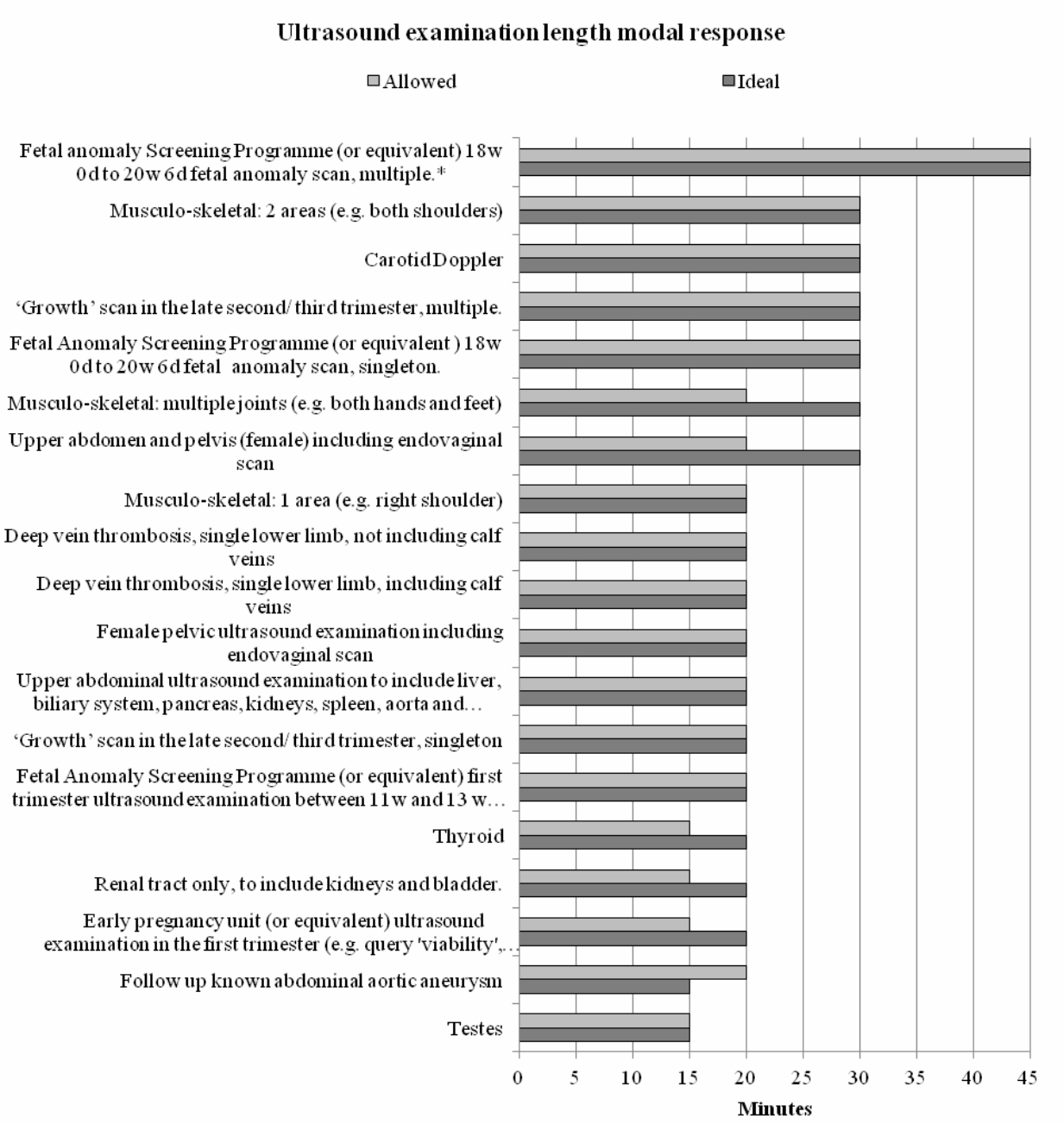
The profile of the respondents is as follows:

- 23% of respondents are lead sonographers or department managers.
- Responses were received from across the UK: England 86%; Northern Ireland 2%; Scotland 8%; Wales 5%.
- NHS is the main employer of 95% of the respondents.

2. Ultrasound examination lengths

2.1 'Allowed' versus 'ideal' – modal analysis

Respondents were asked how much time their unit allowed for each of the following standard ultrasound examinations. They were then also asked how long they consider the examination should take. The following graphs shows the answer times selected by the greatest number of respondents i.e. the modal responses. Full tables of the frequency of responses can be found in appendices A and B.

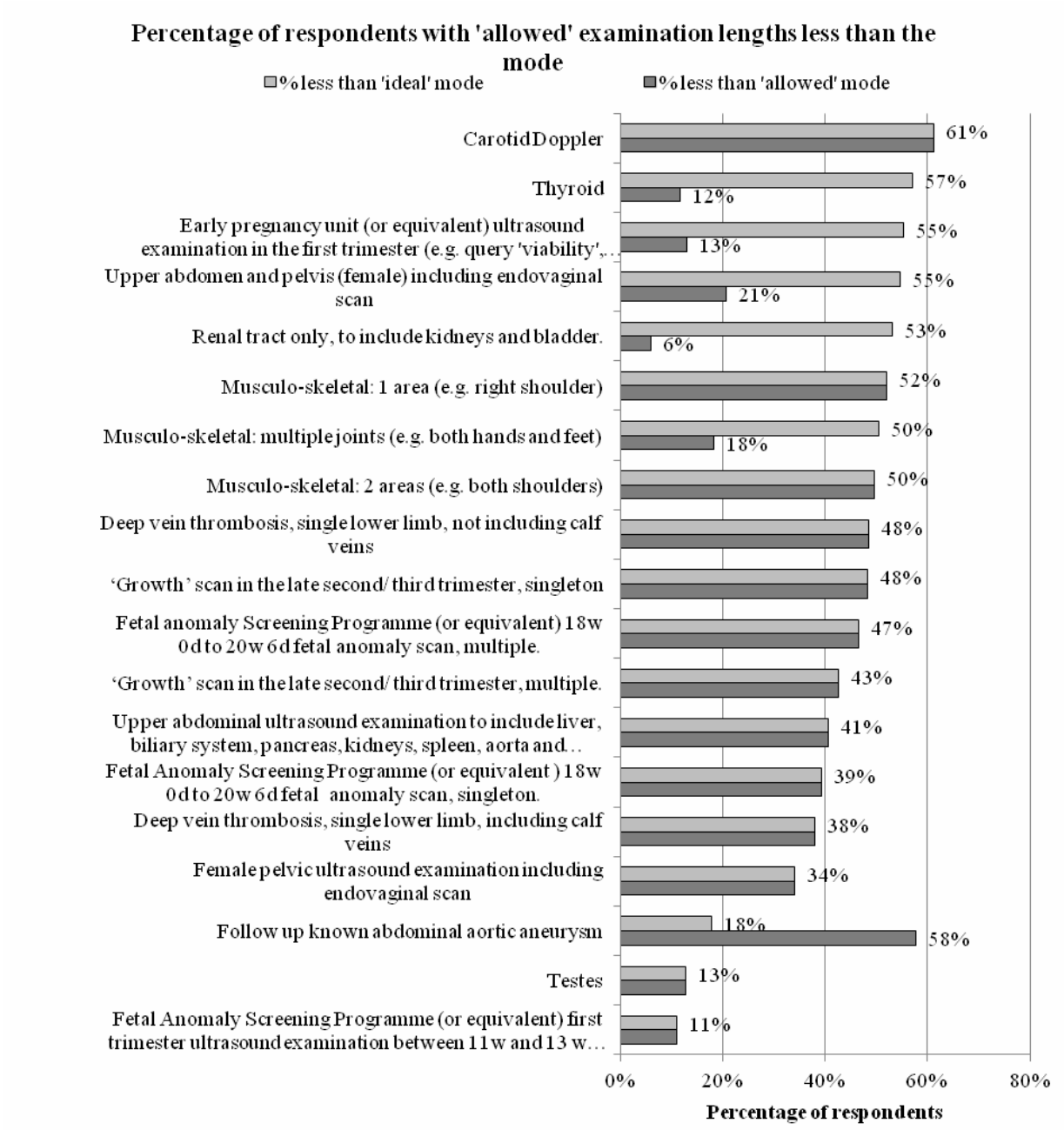


*Note: The response to 'Fetal anomaly Screening Programme (or equivalent) 18w 0d to 20 w 6d fetal anomaly scan, multiple' cannot be accurately represented on this chart. The modal responses in relation to this examination were: How long does your unit allow? 45 minutes or more; and How long to you consider this examination should take? 1 hour or more.

The modal responses for ultrasound leads and departmental manager differ slightly to those of other respondents. Their 'ideal' examination lengths are similar to those of other respondents. However, their 'allowed' times are more likely to be the same as these 'ideal' times i.e. there is less of a difference between their 'allowed' and 'ideal' examination lengths.

2.2 Percentage of departments with examination lengths shorter than the modal length

The above analysis of modal examination lengths does not give the full story: as the full tables of response frequencies in appendices A and B show, there are significant numbers of respondents with examination lengths shorter than the mode. The following graph illustrates the percentage of respondents with examination lengths shorter than the modal 'allowed' lengths and the modal 'ideal' lengths.



The above graph shows that in eight out the nineteen examination types 50% or more of respondents have 'allowed' examination lengths less than the modal 'ideal' examination length.

2.3 Comments on examination lengths

Respondents were asked if they had any comments about their responses on examination lengths. They were asked to include whether resources such as helpers are available that may affect examination times. The most frequent themes to emerge from these comments are given in the table below. The three most frequent factors highlighted are that actual examination lengths vary depending on the individual patient circumstances; planning can be affected by late additions of urgent patients; and that time pressure can exacerbate the issue of musculo-skeletal disorders in sonographers.

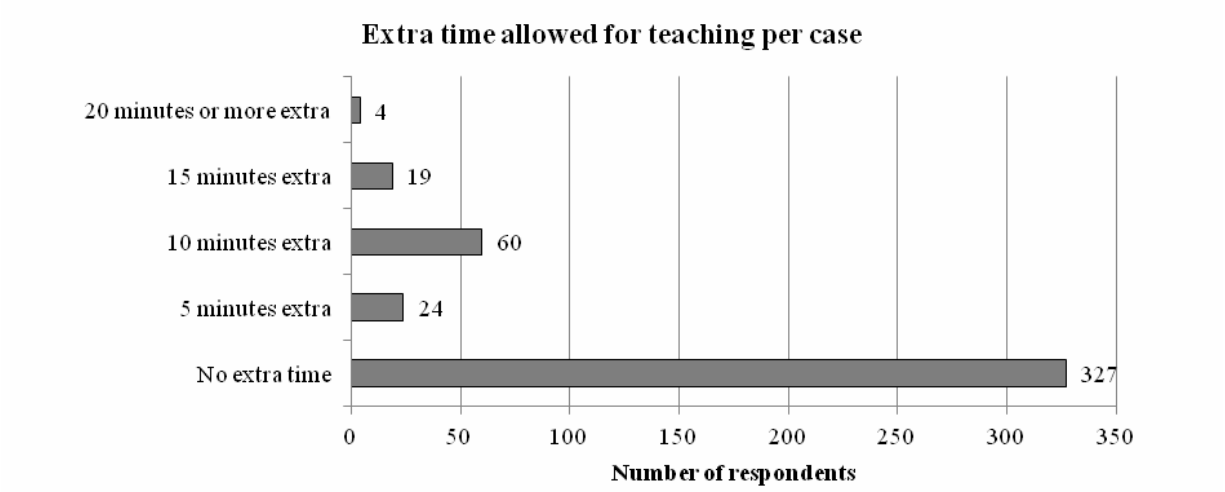
Theme	Number of respondents	Illustrative comments
Examination lengths depend on individual patient circumstances	42	*"Much depends on patient size, mobility and condition. If this could be factored in more effectively then the job would be less stressful."*
Late additions to lists	28	*"Although bookings are made at these timings there are constantly 'urgent scans' fitted in during the day- can add up to one third of patient numbers- so the timings of bookings are irrelevant- just ask us how many patients we scan in one day! 30- 40!"*
Sonographer work-related musculo-skeletal disorders	16	*"Given the responsibility of sonographers and the need to have made a diagnostic conclusion (report) from the scan before the patient leaves the department, sonographers have little or no option but to carry on working. When chatting amongst my colleagues up and down the country, this is a common theme; - and yet, here is a group of workers who must ensure they have breaks due to the risk of repetitive strain. This has been well established for many years and yet nothing seems to change and the upper echelons, including radiologists, who make decisions on staff who are scanning busy lists all day & every day, do not seem to hear. Within the space of 18 months I know of 6 colleagues who have had absence from work due to repetitive strain injury. Additionally I personally know of three sonographers who have had to have shoulder surgery and, of a further three sonographers who have had to leave the profession due to RSI. Given*

Theme	Number of respondents	Illustrative comments
		that some Trusts are changing entitlements to sick pay, and, nationally looking at increasing the retirement age, where does this leave this dedicated but vulnerable group of health care professionals."
Examination lengths are too short	15	*"I always feel rushed and pressurised to complete scans in the allotted time. Time limits are set by departmental manager. Some more experienced sonographers are more speedy at completing exams, but as a general sonographer expected to scan anything on any list, I do find I am more stressed when lists run behind. Management are not concerned whether we complete lists on time but how many scans are done on each list!"*
Helpers not available	14	*"No help, no clinical support worker, no clerical support all typing etc. done by oneself, no support with prep of room/supplies etc."*
Helpers aid process	12	*"All scans except obstetrics are performed with a helper which helps greatly in keeping to times. Obstetric scan times could be reduced slightly if a helper was present."*
Reporting adds to time	11	*"US examinations are difficult to allocate prescriptive time to. Patient preparation and after care vary so much as does length of time to report due to result."*
Multiple pregnancies	9	*"Multiple are booked for an 18 week early anomaly scan in addition to the routine anomaly scan but we do not always get double/triple appts."*
Impact on breaks	9	*"Times quoted do not allow for the fact that emergencies and extras are squeezed in between the allocated scans, therefore reducing the actual scanning time for each patient. Breaks are not given for staff, except lunch. But it is usually a struggle to get 15 - 20 mins for lunch! Feel very rushed, worried about making mistakes. Not enough time to give to the patient to make them feel cared for. No wonder they complain of feeling like cattle, or just a number!!"*
No set appointment times	9	*"…in our hospital there is no time allowed i.e. the patients are appointed to the clinic every 10-15 minutes but ultrasound takes as long as is required for the examination and the only constraints are the varying number of patients that may have to be scanned."*
Mixed lists help	8	*"Generally appointments are about right as no appointments are less than 15 minutes and lists are case mixed so if one case takes a little longer than anticipated this is evened up by a case taking less time."*

3. Teaching time per case

3.1 Extra time allowed

The majority of repsondents (75%) say that no extra time is allowed for teaching. However, in units where extra time is allowed, they normally allow 10 minutes extra time for teaching per case. There is no statistically significant difference[1] in whether extra time is allowed for teaching between England and the other UK countries.



3.2 Comments on teaching time

Respondents were asked if they had any comments about their above responses on teaching time. The most frequent themes to emerge from these comments are given in the table below. By far the most frequent comment was that sonographers should be allowed additional time for teaching.

Theme	Number of respondents	Illustrative comments
Should have additional time	82	*"We are a teaching hospital and almost every list is a teaching list. Not having extra time is a real risk that is repeatedly highlighted but never addressed, despite several incidents of mistakes being made on scan when a student sonographer or doctor is scanning under supervision."*
Work pressure impacts on teaching	35	*"It would be nice to be able to factor in enough time to go through this properly with the student / trainee especially when it is a complex case or where you want to sit down and discuss the report and further research in more detail. This would probably add another 50% to examination time and would therefore have a detrimental effect on patient numbers and*

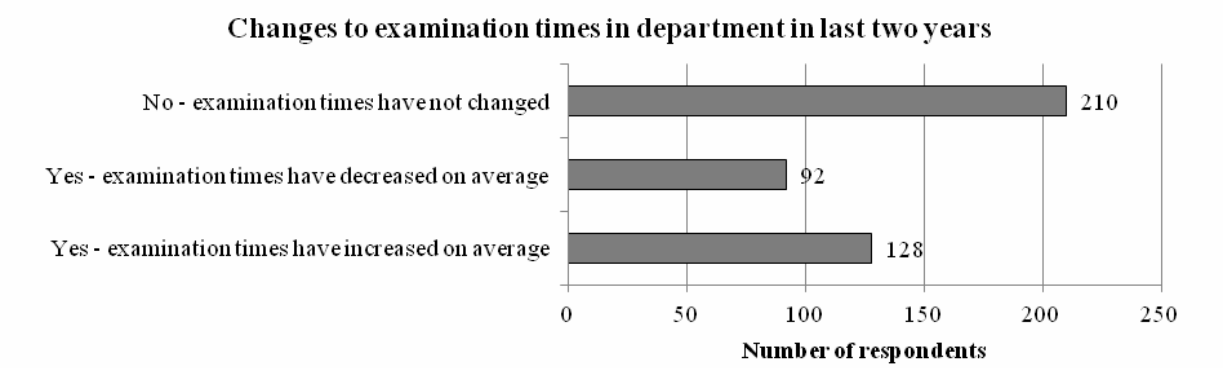
[1] Chi-squared test (95% confidence) – Note for the purposes of this statistical analysis the responses from Northern Ireland, Scotland and Wales were combined to avoid low response numbers from individual countries adversely affecting the analysis.

Theme	Number of respondents	Illustrative comments
		consequently wait time."
Depends on student experience	15	*"I think at least 10 minutes extra would be acceptable when teaching dependent upon whether student just started learning or nearly finished ultrasound course i.e. longer if only just started."*
Use dedicated teaching lists	13	*"Training lists are booked separately. If it is not a dedicated list and there is a student there is no extra time."*
Process different for medical trainees	11	*"For student sonographers, no extra time is added. For trainee radiologists, a dedicated teaching list is arranged, and, on average, an extra 20 mins is allocated per case. This is really needed for all trainees regardless of grade as it gives time to experiment with the technique, case discussion and practice report writing."*
Impact on colleagues	9	*"The members of staff not teaching have to work faster to compensate for the sonographer held up by teaching."*

4. Changes to examination lengths

4.1 Changes over the last two years

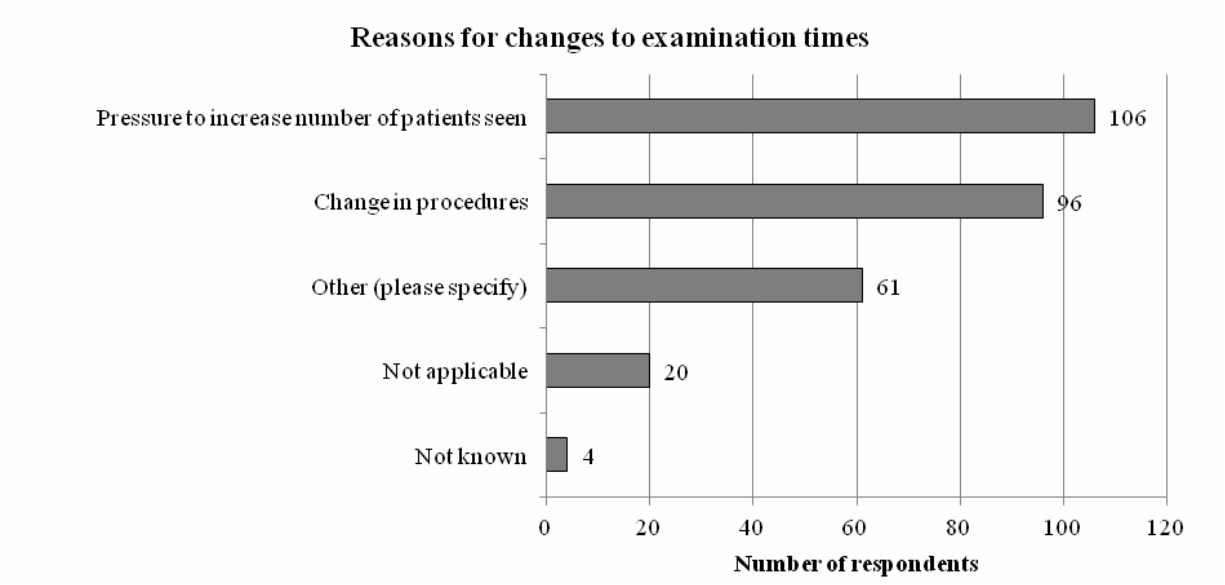
49% of respondents have seen no change to examination lengths in their units over the last two years; 30% have seen an increase in examination lengths; and 21% have seen a decrease. There is a statistically significant difference[2] in the responses between England and the other UK countries, with respondents from England more likely to report that there has been a change in the past two years. Please note that the question did not look at any difference between changes in obstetric and non-obstetric examination lengths.



[2] Chi-squared test (95% confidence) – Note for the purposes of this statistical analysis the responses from Northern Ireland, Scotland and Wales were combined to avoid low response numbers from individual countries adversely affecting the analysis.

4.2 Reasons for changes

If examination lengths had changed in the last two years, respondents were asked to select the reason(s) from a given list which is illustrated in the graph below.



The main other free text responses were:

- due to national guidelines e.g. Fetal anomaly screening programme (FASP) guidelines and National screening committee guidelines (28 respondents); and
- in response to increasing work-related musculo-skeletal disorders in sonographers (11 respondents).

4.3 Comments on changes

Respondents were asked if they had any comments about changes in examinations length in the past two years. The most frequent themes to emerge from these comments are given in the table below. Many of the comments related to mid-trimester anomaly scan guidelines and a general increase in demand for ultrasound services.

Theme	Number of respondents	Illustrative comments
Mid-trimester anomaly scan	24	*"Only the anomaly scan appointments have increased from 20 mins to 30 mins in line with the FASP guidelines."*
Workload increases	23	*"The total of ultrasound rooms has remained the same but the volume of work has tripled so time has to be decreased."*
Protocol changes	12	*"Our examination times have not changed but the way in which we work has. We now report all upper abdo case some of them do involve a*

Theme	Number of respondents	Illustrative comments
		radiologist if cross sectional imaging is required. We have not been given any extra time to incorporate this into our daily work pattern and the next pt is awaiting their scan. It can be very stressful at times."
Nuchal Translucency (NT) Scan	11	*"Only time that has changed is an extra 5mins for early scan plus NT 20min instead of 15min"*

5. General comments

Finally, respondents were asked for any comments about ultrasound examination times either as they apply to your unit or in general terms. The word cloud gives a graphical display of the most frequently used words in the responses and the table below highlights the main themes which have not been already covered previously in this report.

The main concerns centre around mounting expectations of ultrasound services and a focus on targets increasing the pressure / stress on staff and having a negative impact on service quality.

Theme	Number of respondents	Illustrative comment
Impact on stress / pressure / morale	29	*"Always feeling rushed and stressed, and as a manager I am expected to do all my admin duties in the middle of all my lists."*
Increasing expectations	27	*"I have to say the hospital I am currently working in is very supportive of its sonographers as a whole. However, in general and as technology improves the expectation of what can be detected on ultrasound scans is increasing and the quality of images is expected to be very high even when technically difficult due to body habitus or patient frailty or other factors. Appointment times have not changed to take account of these factors…"*
Impact on quality / patients	25	*"We are constantly under pressure as still being asked to reduce times/exam further. The pressure is having a negative impact on the quality of service we are able to provide."*
Pressure to meet targets	22	*"Waiting list targets and efficiency drives are leading to heavily booked lists with no leeway for unforeseen problems leading to virtual conveyor belt scanning …"*
Staff shortages	18	*"We are short staffed, struggling to get reliable agency staff. We have been out to advert several times!"*
Impact on communication with patients	15	*"There is increasing pressure to speed up throughput. In my opinion we don't have time to listen to patients or explain things in detail because of these demands."*
Pressure from management	14	*"Our most recent manager has no ultrasound experience, only sees statistics, not patients and staff."*
Current appointment lengths are fair	13	*"They are quite generous times, with break am and pm, and not too much pressure to fit in extras. It is allowable to say "no"."*
Call for national guidelines	10	*"I think it would be useful to have some guidance from a body such as The College of Radiographers on appointment times for general ultrasound as we have had in Obstetrics from FASP."*

Appendix A – Unit 'allowed' examination lengths

Respondents were asked how long their ultrasound unit allowed for a number of standard examinations where applicable. The response frequencies are given in the table below.

	Time allowed (minutes)									
Answer Options	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45 or more**	**Total response count**
Early pregnancy unit (or equivalent) ultrasound examination in the first trimester (e.g. query 'viability', query ectopic)	4	41	**147**	142	0	12	0	0	1	**347**
Fetal Anomaly Screening Programme (or equivalent) first trimester ultrasound examination between 11w and 13 w 6d to include nuchal translucency measurement as part of the combined test.	0	4	34	**218**	28	59	0	2	2	**347**
Fetal Anomaly Screening Programme (or equivalent) 18w 0d to 20w 6d fetal anomaly scan, singleton.	0	0	8	103	36	**220**	0	4	2	**373**
Fetal anomaly Screening Programme (or equivalent) 18w 0d to 20w 6d fetal anomaly scan, multiple.	0	0	4	8	1	44	0	113	**195**	**365**
'Growth' scan in the late second/ third trimester, singleton	0	37	140	**161**	9	19	0	0	0	**366**
'Growth' scan in the late second/ third trimester, multiple.	0	8	43	94	8	**144**	2	42	18	**359**
Upper abdominal ultrasound examination to include liver, biliary system, pancreas, kidneys, spleen, aorta and retroperitoneum.	0	7	145	**210**	1	10	0	1	1	**375**
Renal tract only, to include kidneys and bladder.	0	22	**173**	168	0	3	1	0	0	**367**
Follow up known abdominal aortic aneurysm	2	59	137	**140**	0	5	0	0	0	**343**
Female pelvic ultrasound examination including endovaginal scan	0	12	122	**229**	4	26	0	0	0	**393**
Upper abdomen and pelvis (female) including endovaginal scan	0	3	71	**117**	5	95	1	64	2	**358**
Deep vein thrombosis, single lower limb, including calf veins	2	17	64	**107**	1	28	0	0	0	**219**
Deep vein thrombosis, single lower limb, not including calf veins	5	22	80	**101**	0	12	0	0	1	**221**
Testes	2	34	**132**	109	1	5	0	0	0	**283**
Thyroid	1	27	**109**	97	0	6	0	0	0	**240**
Carotid Doppler	0	11	43	76	1	**79**	0	4	0	**214**
Musculo-skeletal: 1 area (e.g. right shoulder)	1	13	61	**62**	1	6	0	0	0	**144**
Musculo-skeletal: 2 areas (e.g. both shoulders)	0	4	30	31	4	**46**	0	23	1	**139**
Musculo-skeletal: multiple joints (e.g. both hands and feet)	0	3	19	**38**	1	33	0	16	11	**121**

Appendix B – 'Ideal' examination lengths

Respondents were asked how long they considered a number of standard examinations should take. The response frequencies are given in the table below.

	Time (minutes)												
Answer Options	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**1 hour or more**	**Total response count**
Early pregnancy unit (or equivalent) ultrasound examination in the first trimester (e.g. query 'viability', query ectopic)	0	11	83	**201**	17	34	0	0	1	0	0	0	**347**
Fetal Anomaly Screening Programme (or equivalent) first trimester ultrasound examination between 11w and 13 w 6d to include nuchal translucency measurement as part of the combined test.	0	0	9	**135**	62	128	0	5	2	0	0	1	**342**
Fetal Anomaly Screening Programme (or equivalent) 18w 0d to 20w 6d fetal anomaly scan, singleton.	0	0	2	24	33	**280**	6	16	3	0	1	0	**365**
Fetal anomaly Screening Programme (or equivalent) 18w 0d to 20w 6d fetal anomaly scan, multiple.	0	0	0	0	1	21	4	57	100	60	12	**106**	**361**
'Growth' scan in the late second/ third trimester, singleton	0	16	115	**198**	9	21	1	0	0	0	0	1	**361**
'Growth' scan in the late second/ third trimester, multiple.	0	1	11	47	39	**170**	8	60	13	2	0	4	**355**
Upper abdominal ultrasound examination to include liver, biliary system, pancreas, kidneys, spleen, aorta and retroperitoneum.	0	5	39	**237**	35	39	0	3	1	0	0	1	**360**
Renal tract only, to include kidneys and bladder.	0	26	146	**171**	7	4	0	1	0	0	0	0	**355**
Follow up known abdominal aortic aneurysm	4	91	**148**	91	2	1	0	0	0	0	0	0	**337**
Female pelvic ultrasound examination including endovaginal scan	0	3	29	**187**	58	105	0	2	0	0	0	0	**384**
Upper abdomen and pelvis (female) including endovaginal scan	0	0	7	27	26	**157**	15	103	7	4	0	2	**348**
Deep vein thrombosis, single lower limb, including calf veins	0	2	40	**107**	11	52	1	2	0	0	0	0	**215**
Deep vein thrombosis, single lower limb, not including calf veins	1	23	87	**89**	2	12	0	1	1	0	0	1	**217**
Testes	1	27	**122**	111	2	4	0	0	0	0	0	0	**267**
Thyroid	1	17	98	**102**	4	3	0	0	0	0	0	0	**225**
Carotid Doppler	0	1	22	76	13	**80**	1	7	2	0	0	1	**203**
Musculo-skeletal: 1 area (e.g.	1	7	34	**79**	3	8	0	0	0	0	0	0	**132**

	Time (minutes)												
Answer Options	**5**	**10**	**15**	**20**	**25**	**30**	**35**	**40**	**45**	**50**	**55**	**1 hour or more**	**Total response count**
right shoulder)													
Musculo-skeletal: 2 areas (e.g. both shoulders)	0	1	4	24	9	**58**	3	22	5	1	1	1	**129**
Musculo-skeletal: multiple joints (e.g. both hands and feet)	0	0	1	25	3	**38**	3	28	5	2	1	9	**115**

Appendix C – Questionnaire (pdf only)

The questions were designed by Nigel Thomson, SCoR Professional Officer for Ultrasound.

Ultrasound examination times survey

Welcome

Welcome to the Society and College of Radiographers' (SCoR) survey of ultrasound examination times in the UK. The purpose of this survey is to obtain information on current practice with regards to ultrasound examination times.

Please answer the questions in relation to your main employment if you have more than one employer. Your response to this survey will be kept confidential. The overall results will be published in the SCoR online document library at http://doc-lib.sor.org/.

The survey will take you between 10 and 15 minutes to complete. Please contact Nigel Thomson at nigelt@sor.org if you have any questions about this survey.

Examination times

The time for an examination should include assessing the ultrasound request, introductions, explanation, obtaining consent, performing the examination, discussing the findings with the patient, writing the report, archiving the images and attending to the after-care of the patient including arrangements for further appointments and/or investigations.

Reference: Guidelines for Professional Working Standards: Ultrasound Practice (2008) United Kingdom Association of Sonographers

All examinations as scheduled for sonographers on booked out-patient or GP referral lists. Please comment in the free text box if resources such as helpers are available that may affect your examination times.

Ultrasound examination times survey

How long does your unit allow for the following? *(Please answer all that apply)*

	Time allowed	How long do you consider this examination should take?
Early pregnancy unit (or equivalent) ultrasound examination in the first trimester (e.g. query 'viability', query ectopic)		
Fetal Anomaly Screening Programme (or equivalent) first trimester ultrasound examination between 11w and 13 w 6d to include nuchal translucency measurement as part of the combined test.		
Fetal Anomaly Screening Programme (or equivalent) 18w 0d to 20w 6d fetal anomaly scan, singleton.		
Fetal anomaly Screening Programme (or equivalent) 18w 0d to 20w 6d fetal anomaly scan, multiple.		
'Growth' scan in the late second/ third trimester, singleton		
'Growth' scan in the late second/ third trimester, multiple.		
Upper abdominal ultrasound examination to include liver, biliary system, pancreas, kidneys, spleen, aorta and retroperitoneum.		
Renal tract only, to include kidneys and bladder.		
Follow up known abdominal aortic aneurysm		
Female pelvic ultrasound examination including endovaginal scan		
Upper abdomen and pelvis (female) including endovaginal scan		
Deep vein thrombosis, single lower limb, including calf veins		
Deep vein thrombosis, single lower limb, not including calf veins		
Testes		
Thyroid		
Carotid Doppler		
Musculo-skeletal: 1 area (e.g. right shoulder)		
Musculo-skeletal: 2 areas (e.g. both shoulders)		
Musculo-skeletal: multiple joints (e.g. both hands and feet)		

Would you like to add any comments about your responses above?

Teaching time per case

Ultrasound examination times survey

Do you allow any extra time for teaching per case?

- ○ No extra time
- ○ 5 minutes extra
- ○ 10 minutes extra
- ○ 15 minutes extra
- ○ 20 minutes or more extra

Would you like to add any comments about your response above?

Changes

In the last two years have examination times changed in your department?

- ○ Yes - examination times have increased on average
- ○ Yes - examination times have decreased on average
- ○ No - examination times have not changed

If examination times have changed, please give the reason below. *(Select all that apply.)*

- ☐ Change in procedures
- ☐ Pressure to increase number of patients seen
- ☐ Not known
- ☐ Not applicable

Other (please specify)

Would you like to add any comments about your responses above?

Type of employer

Are you the lead sonographer/departmental manager?

- ○ Yes
- ○ No

Ultrasound examination times survey

Please give the country of the UK you are working in:

- ○ England
- ○ Northern Ireland
- ○ Scotland
- ○ Wales

Who is your main employer?

- ○ NHS
- ○ Independent or private healthcare company

Other (please specify)

Independent / Private

Which of the following best describes the examinations you carry out?

- ○ I undertake NHS ultrasound examinations
- ○ I undertake both NHS referrals and private examinations
- ○ I only undertake private ultrasound examinations

Other (please specify)

Difference between NHS and private examinations

Is there any difference in the time allowed for NHS referrals compared to private examinations? Please describe.

Your general comments

Have you any comments about ultrasound examination times either as they apply to your unit or in general terms?