

# What do they do out there?

A TIME AND MOTION STUDY OF EM CONSULTANTS DURING A CLINICAL SHIFT

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# Introduction

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No conflicts of interest to declare

Time and Motion study of EM Consultants' activity during a clinical shift at a MTC

Performed by medical students

# Background

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Emergency Medicine is a relatively new specialty, with a rapidly evolving role.

RCEM acknowledges that in many ways EM is still working to define its role <sup>1</sup>.

The unique nature of consultant work in EM makes direct comparison to other specialities difficult.

Very little published literature available on this topic, especially in Emergency Medicine in the UK.

1. RCEM careers page (<http://www.rcem.ac.uk/Public/Working%20as%20a%20Consultant>)

# Methodology

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A single centre time and motion study of EM Consultant activity was performed by senior medical students using a novel data collection form.

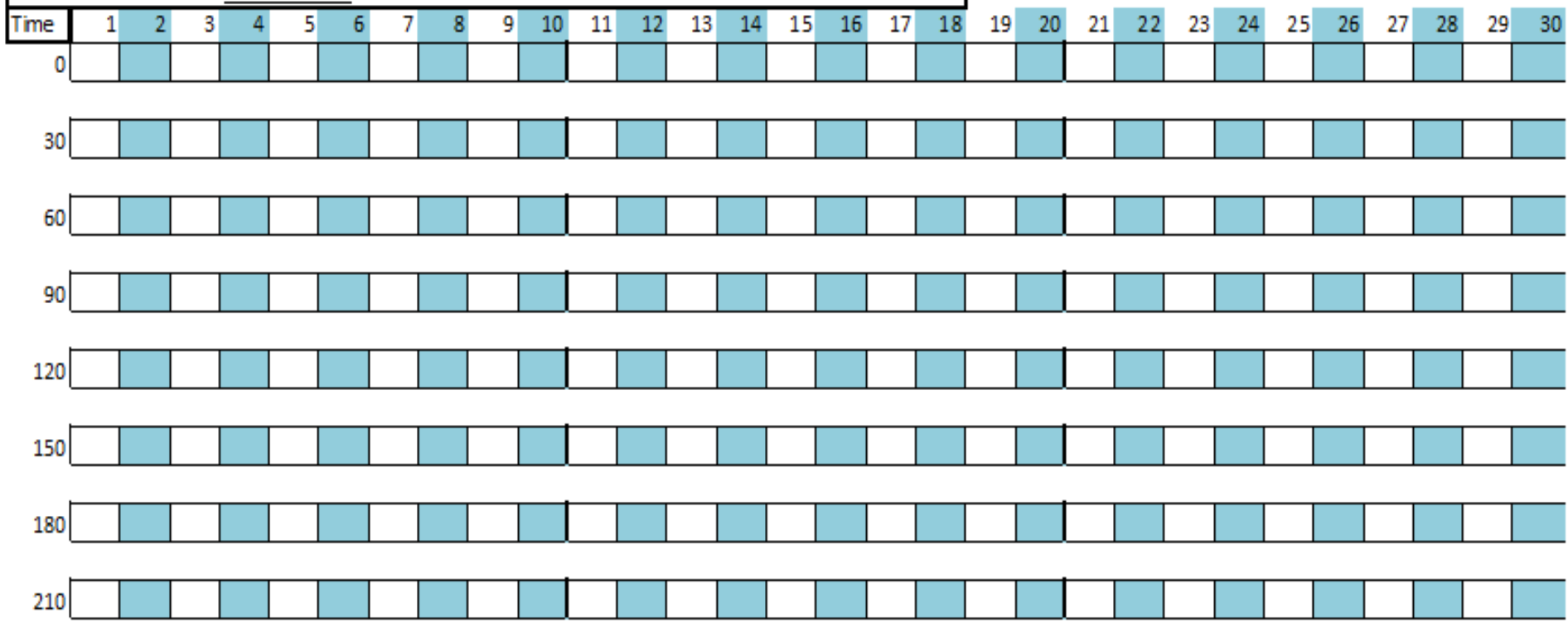
The minute by minute data collection form covers 20 common consultant tasks in EM, identified by a mixture of clinical experience and a pilot study.

Prior to the study all students were trained to identify and record different activities in a single one-to-one training session.

Over two 8 week data collection periods, we aimed to collect 100 hours worth of data over an even distribution of consultant shift times.

## EM Time and Motion Study

<b>Time and Motion Study of EM Consultant Activity</b>			
Date: _____	Start Time: _____	Consultant code: _____	Sheet _____ of _____
Finish Time: _____			



1	Discussing / Asking re a patient	6	Education (of consultant)	11	Physically reviewing patient	16	Handover
2	CBD / miniCEX	7	Overseeing juniors	12	Radiology reviews	17	Other
3	Carrying out procedures	8	Operational discussion - Queue	13	Requesting investigations	18	Reviewing patient notes
4	Discussion with other specialties	9	Operational discussion - Control room	14	Running Trauma	19	Cardiac Arrest
5	ECG review	10	Operational discussion - ED management	15	Teaching	20	Sedation
i	interruption	Q	Queue (one Q per person queuing)	QR	Queue in resus		

# Methodology

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As a further outcome we also recorded all consultant interruptions, and when there was a queue for the consultant.

For the purposes of this study, we defined an interruption as anything that caused the consultant to stop a task before they had completed it, in order to complete another task, due to prompting from staff or patients.

We included an “other” option on the data collection form, for activities such as breaks, talking with other staff about a non clinical matter etc.

# Setting



We performed this time and motion study at University Hospital Coventry, a 1250 bed Major Trauma Centre in the West Midlands



# Results

101 hours worth of data was collected.



Activity	% of time
<u>Discussing / asking re a patient</u>	20.0%
Other	16.7%
Reviewing patient notes / Sifting	10.4%
<u>Physically reviewing a patient</u>	10.4%
Operational discussion - ED management	5.5%
Teaching	5.4%
<u>Running Trauma</u>	5.3%
Overseeing juniors	4.9%
Requesting investigations	3.7%
Carrying out procedures	3.1%

Activity	% of time
Operational discussion - Queue	3.1%
Radiology reviews	2.9%
Discussion with other specialties	2.6%
Handover	1.6%
ECG review	1.4%
CBD / miniCEX	1.1%
Operational discussion - Control room	0.9%
<u>Cardiac arrest</u>	0.7%
Education (of consultant)	0.3%
Sedation	0.0%



# Results

101 hours worth of data was collected.



Activity	% of time
<u>Discussing / asking re a patient</u>	20.0%
<u>Physically reviewing a patient</u>	10.4%
<u>Running Trauma</u>	5.3%

Activity	% of time
<u>Cardiac arrest</u>	0.7%

# Results

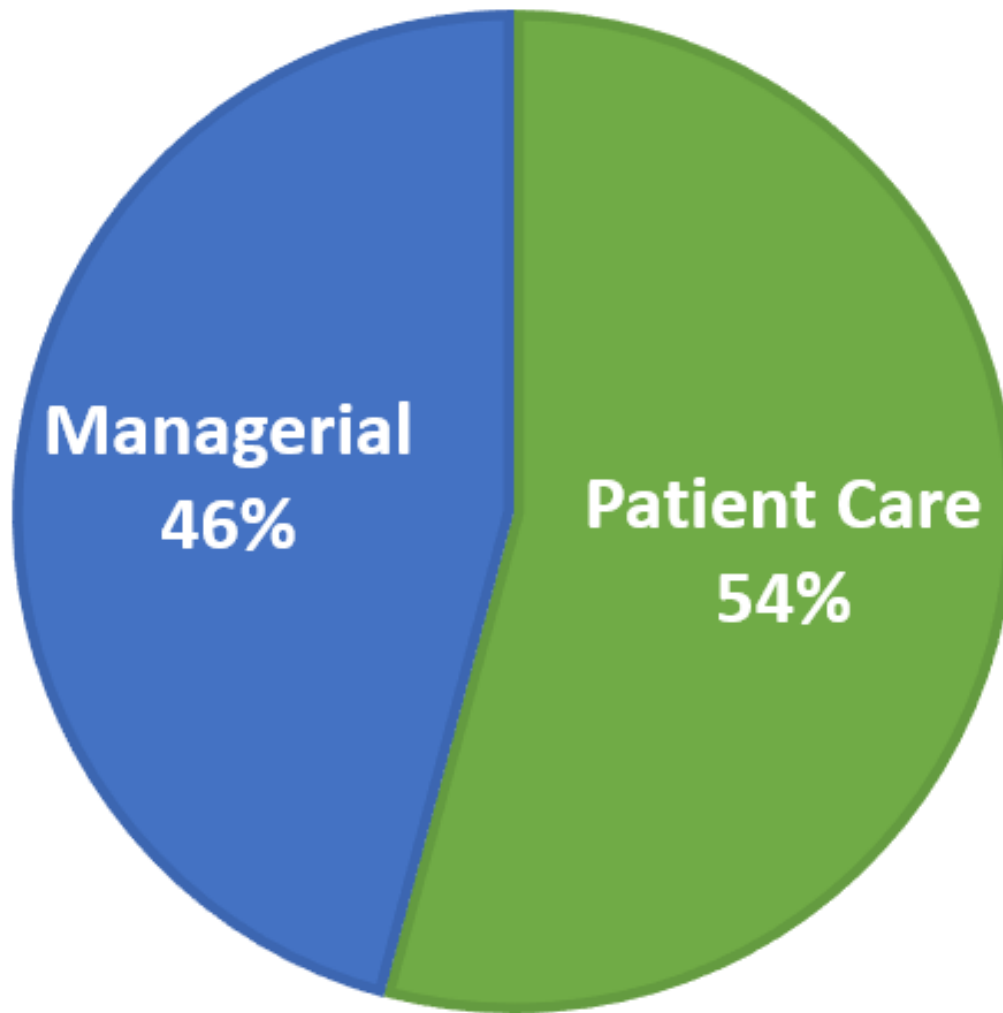
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The total time spent **directly** caring for patients during the data collection period was 3286 minutes, 54.2% of the time analysed.

**This equates to thirty two minutes of every hour being spent on patient care**

## TIME SPENT ON MANAGERIAL VS PATIENT CARE TASKS



# Results

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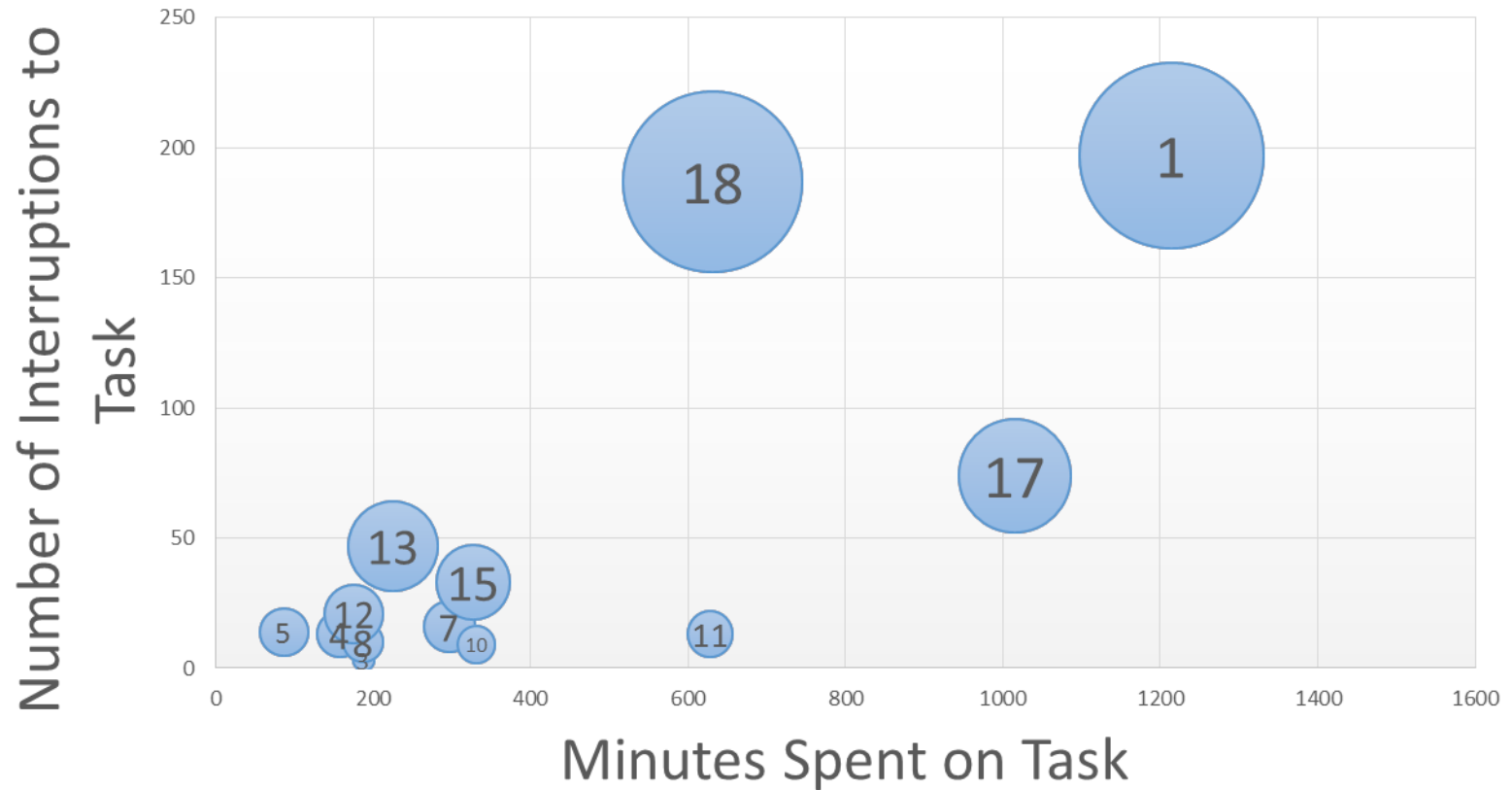


On average, 6.3 interruptions per hour occurred during the data collection periods

This equates to an interruption once every 9.5 minutes.

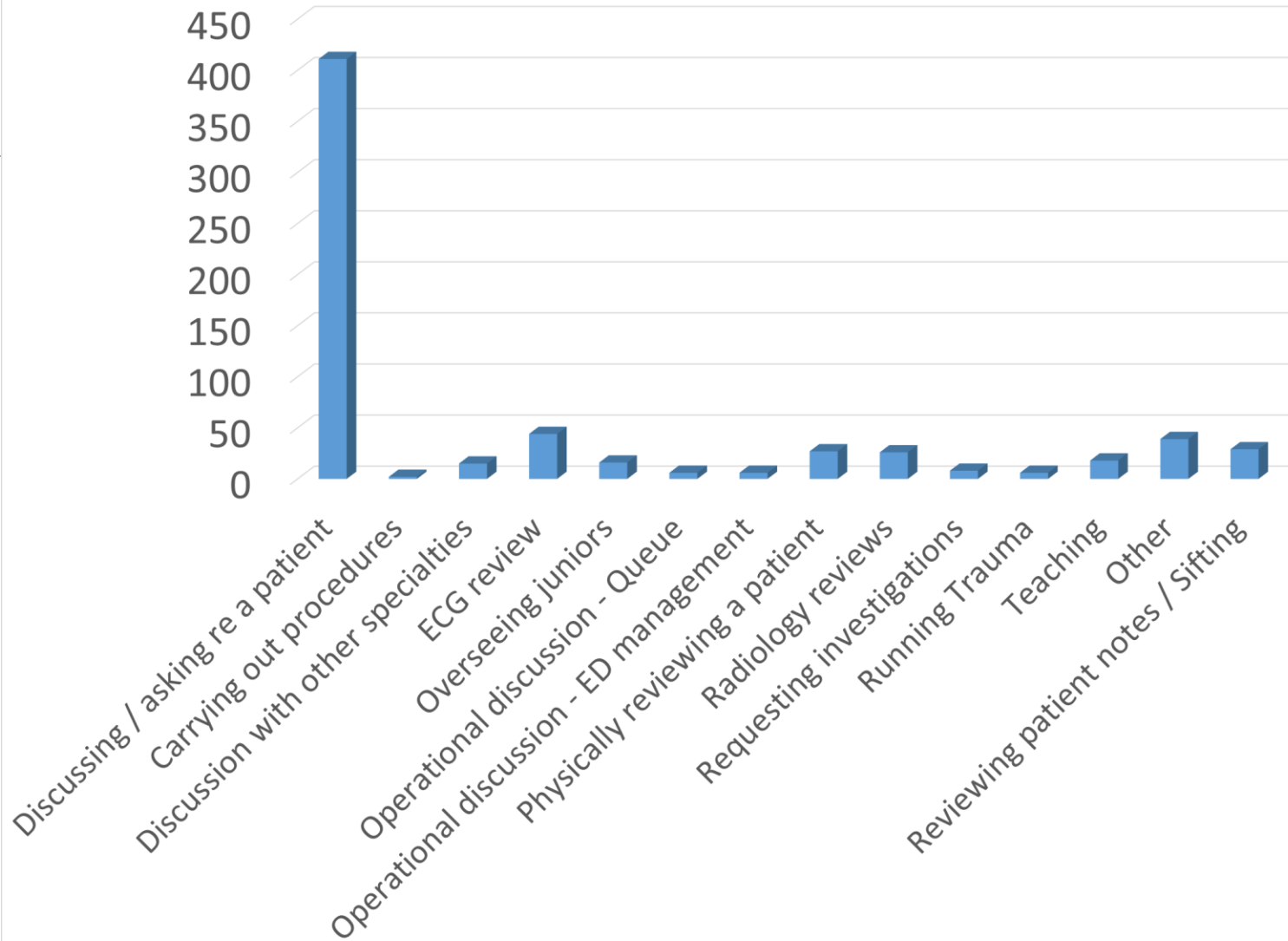
For an 8 hour shift, this would mean 50.4 interruptions.

# Number of interruptions per minute

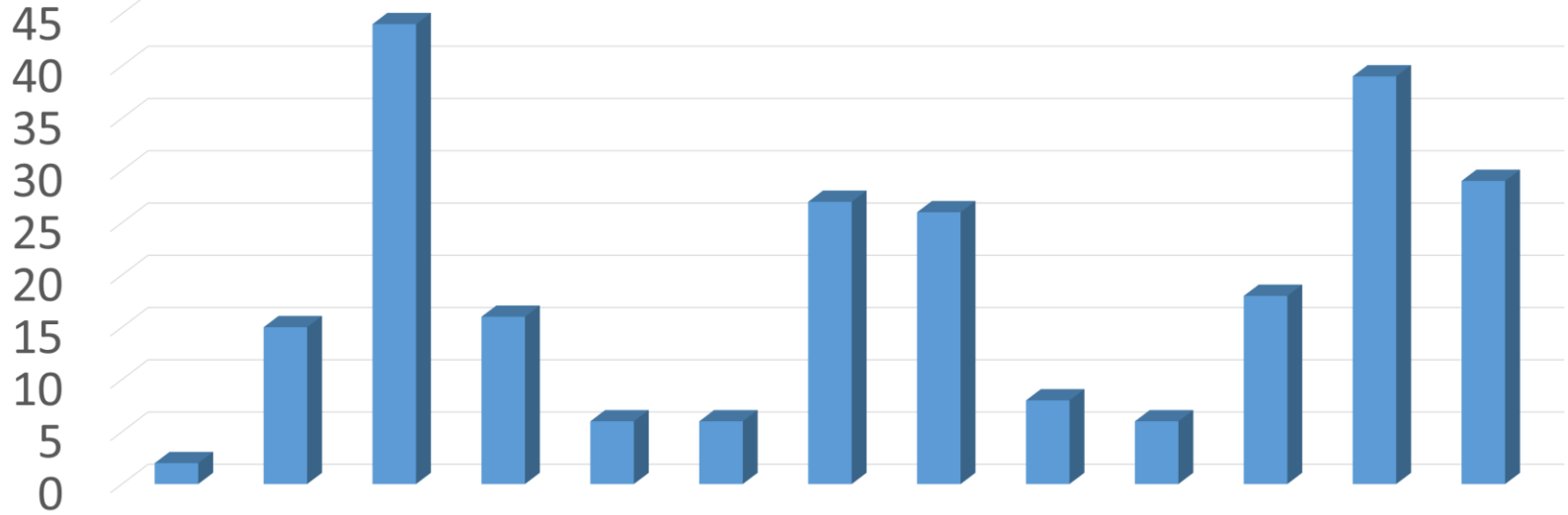


<b>1 - Discussing / asking re a patient</b>	<b>8 - Operational discussion - Queue</b>	<b>15 - Teaching</b>
<b>2 - CBD / miniCEX</b>	<b>9 - Operational discussion - Control room</b>	<b>16 - Handover</b>
<b>3 - Carrying out procedures</b>	<b>10 - Operational discussion - ED management</b>	<b>17 - Other</b>
<b>4 - Discussion with other specialties</b>	<b>11 - Physically reviewing a patient</b>	<b>18 - Reviewing patient notes / Sifting</b>
<b>5 - ECG review</b>	<b>12 - Radiology reviews</b>	<b>19 - Cardiac arrest</b>
<b>6 - Education (of consultant)</b>	<b>13 - Requesting investigations</b>	<b>20 - Sedation</b>
<b>7 - Overseeing juniors</b>	<b>14 - Running Trauma</b>	

# Number of interruptions for Activity

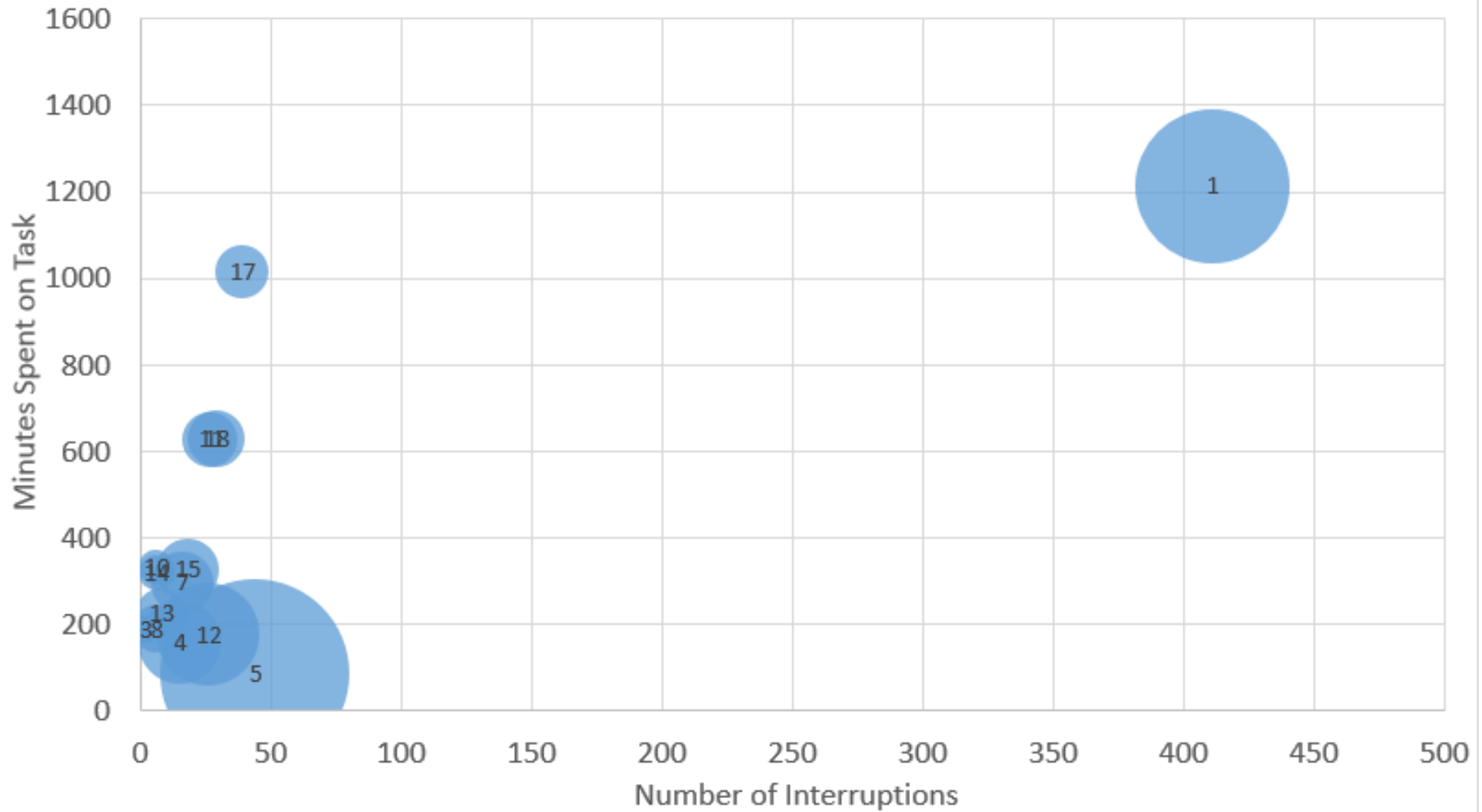


## Number of Interruptions For a Task



Carrying out procedures  
Discussion with other...  
ECG review  
Overseeing juniors  
Operational discussion - ...  
Physically reviewing a...  
Radiology reviews  
Requesting investigations  
Running Trauma  
Teaching  
Other  
Reviewing patient notes / ...

# Interruptions For a Task





# Discussion

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We succeeded in gathering over 100 hours worth of data, and covered from 08:30 to 23:30. Unfortunately we did not manage to gather any data on a Sunday.

Limitations of this time and motion study include limited hours of data gathered, limitations inherent in the data collection form, the fact that it was a single centre study, and a potential Hawthorne effect.

Easily expandable and cheap to perform.

Our results agreed with the other data available on the topic.

3. Brown, R. (2000). "Activities of accident and emergency consultants—a time and motion study."
4. Jeanmonod, R. Et al. (2010). The nature of emergency department interruptions and their impact on patient satisfaction.
5. Westbrook, J. Et al. (2010). The impact of interruptions on clinical task completion.
6. Allard, J. Et al. (2012). "Do you really need to ask me that now?"
7. Chisholm Et al. (2000). Emergency department workplace interruptions: are emergency physicians "interrupt-driven" and "multitasking"?

# Recommendations

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This form of time in motion study should be extended to other hospitals to make it more representative of the activities of EM Consultants during a clinical shift

We recommend that observers have a good knowledge of clinical tasks and clinical language, and are familiar with the area that they perform the study.

Compare breakdown of time spent on different tasks to departmental capacity, time of day etc.

Gather information on staff ratios related

Have a predesignated spread of data collection times.



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Thank you  
Any Questions?

# References

1. RCEM careers page (<http://www.rcem.ac.uk/Public/Working%20as%20a%20Consultant>)
2. Morrison, J. B., & Rudolph, J. W. (2011). Learning from accident and error: avoiding the hazards of workload, stress, and routine interruptions in the emergency department. *Academic Emergency Medicine : Official Journal of the Society for Academic Emergency Medicine*, 18(12), 1246–1254. <http://doi.org/10.1111/j.1553-2712.2011.01231.x>
3. Brown, R. (2000). "Activities of accident and emergency consultants—a time and motion study." *Journal of Accident & Emergency Medicine* 17(2): 122-125.
4. Jeanmonod, R., Boyd, M., Loewenthal, M., & Triner, W. (2010). The nature of emergency department interruptions and their impact on patient satisfaction. *Emergency Medicine Journal : EMJ*, 27(5), 376–379. <http://doi.org/10.1136/emj.2008.071134>
5. Westbrook, J. I., Coiera, E., Dunsmuir, W. T. M., Brown, B. M., Kelk, N., Paoloni, R., & Tran, C. (2010). The impact of interruptions on clinical task completion. *Quality & Safety in Health Care*, 19(4), 284–289. <http://doi.org/10.1136/qshc.2009.039255>
6. Allard, J., Wyatt, J., Bleakley, A., & Graham, B. (2012). “Do you really need to ask me that now?": a self-audit of interruptions to the “shop floor” practice of a UK consultant emergency physician. *Emergency Medicine Journal : EMJ*, 29(11), 872–876. <http://doi.org/10.1136/emj.2011.200218>
7. Chisholm, C. D., Collison, E. K., Nelson, D. R., & Cordell, W. H. (2000). Emergency department workplace interruptions: are emergency physicians “interrupt-driven” and “multitasking”? *Academic Emergency Medicine : Official Journal of the Society for Academic Emergency Medicine*, 7(11), 1239–1243.

# Appendix

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- 1 - Discussing / asking re a patient
- 2 - CBD / miniCEX
- 3 - Carrying out procedures
- 4 - Discussion with other specialties
- 5 - ECG review
- 6 - Education (of consultant)
- 7 - Overseeing juniors
- 8 - Operational discussion - Queue
- 9 - Operational discussion - Control room
- 10 - Operational discussion - ED management
- 11 - Physically reviewing a patient
- 12 - Radiology reviews
- 13 - Requesting investigations
- 14 - Running Trauma
- 15 - Teaching
- 16 - Handover
- 17 - Other
- 18 - Reviewing patient notes / Sifting
- 19 - Cardiac arrest
- 20 - Sedation

# Activities recorded as “Other”

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Accompanying patient to CT scan

Discussion with police

Speaking with other ED Consultants

Break

Bathroom breaks

Walking between departments

Singing happy birthday

Speaking to non clinical staff (estates, repairs, builders etc)

# How much time is spent caring for patients?

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We considered nine activities to be caring directly for patients

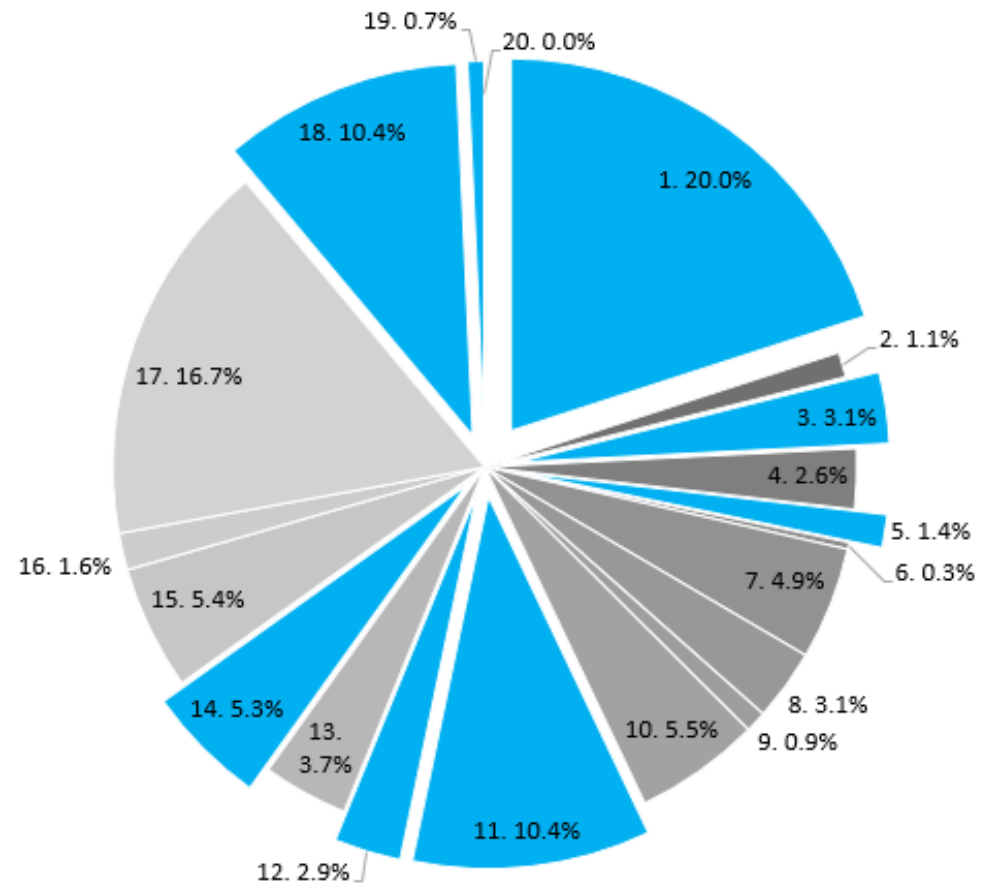
- Discussing / Asking about a patient
- Reviewing ECG's and Radiology
- Carrying out procedures
- Physically reviewing a patient
- Running a Trauma call, Cardiac Arrest or Sedation
- Reviewing patient notes

This gave us a total time caring for patients of 3286 minutes, 54.2% of the time analysed.

**This equates to thirty two minutes of every hour being spent on patient care**

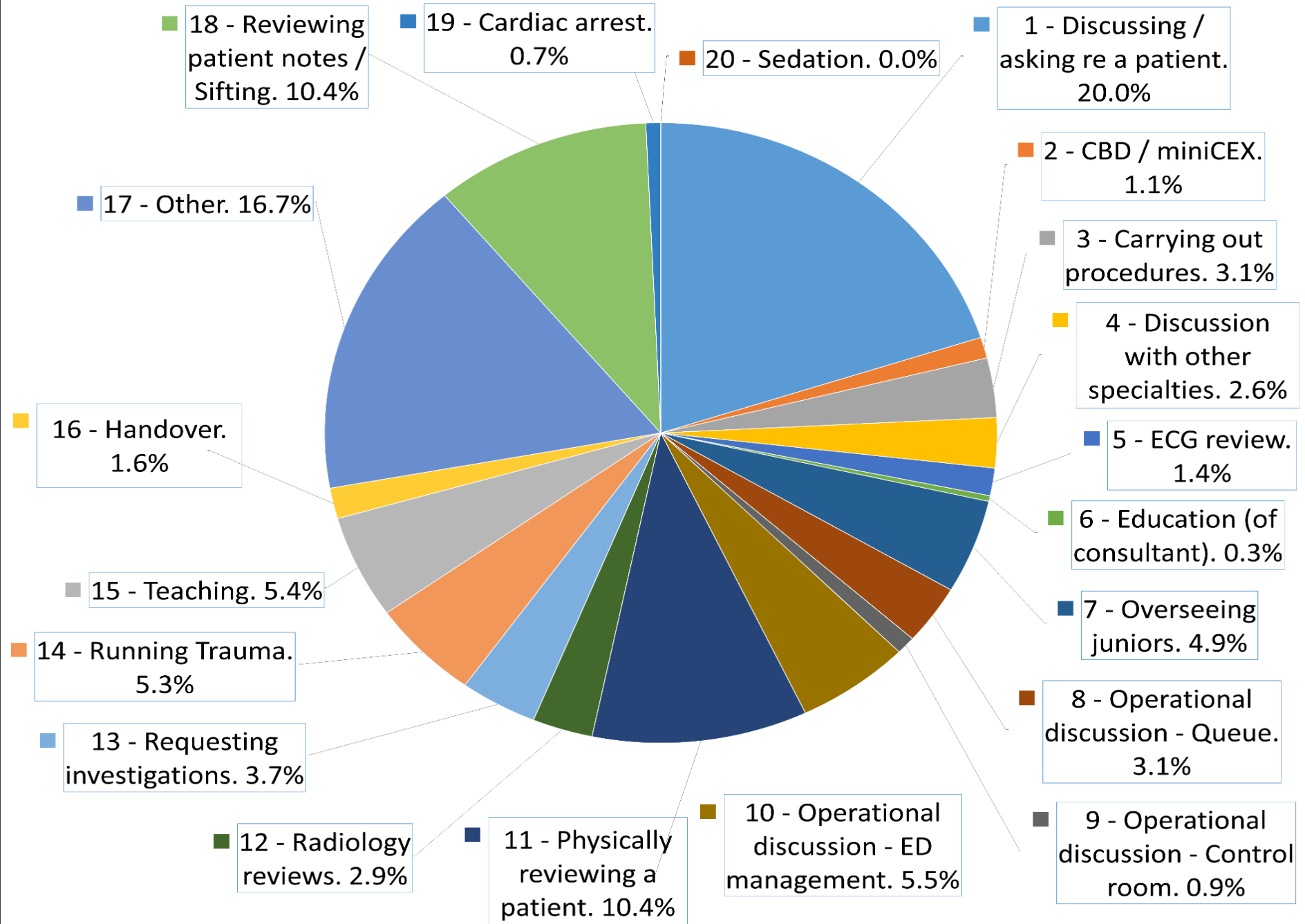
# Time Spent on Patient Care

- 1 - Discussing / asking re a patient
- 2 - CBD / miniCEX
- 3 - Carrying out procedures
- 4 - Discussion with other specialties
- 5 - ECG review
- 6 - Education (of consultant)
- 7 - Overseeing juniors
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# Activities of EM Consultants During Clinical Shifts



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