MENTOR AKT STATS – POWERHOUSE PLOTS WEBINAR WITH DR GIAM
RISK EXTRACTION FROM PLOTS
The course will run about a week before the AKT sitting

To book : https://www.mentormeducation.com/mentor-akt-powerhouseplots

QUESTION 1:

Pancreatic Cancer - "symptom-based" early diagnosis?

New onset diabetes	Diarrhoea	Constipation	Malaise	Nausea or vomiting	Abdominal pain	Loss of weight	Jaundice	
0.2 (0.2, 0.2)	0.2 (0.2, 0.2)	0.2 (0.2, 0.2)	0.2 (0.2, 0.3)	0.3 (0.3, 0.4)	0.3 (0.3, 0.4)	0.8 (0.7, 1.0)	21.6 (14,52)	PPV as a single symptom
0.3 (0.2, 0.4)	0.2 (0.1, 0.3)	0.3 (0.2, 0.4)	0.3 (0.2, 0.6)	0.3 (0.2, 0.5)	0.4 (0.3, 0.5)	2.0 (1.0, 4.3)	8.9 –	Back pain
	0.4 (0.3, 0.5)	0.4 (0.3, 0.6)	0.5 (0.3, 0.9)	0.7 (0.5, 1.0)	0.9 (0.7, 1.1)	1.6 (1.0, 2.9)	22.3 –	New onset diabetes
		0.2 (0.1, 0.3)	0.3 (0.1, 0.5)	0.2 (0.2, 0.3)	0.4 (0.3, 0.5)	2.7 –	>10 –	Diarrhoea
			0.3 (0.2, 0.5)	0.6 (0.4, 0.8)	0.5 (0.4, 0.7)	1.5 (0.8, 3.0)	>10 –	Constipation
				0.5 (0.3, 0.8)	0.6 (0.4, 0.8)	0.9 (0.4, 2.1)	>10 –	Malaise
					0.9 (0.7, 1.2)	2.2 (1.1, 4.6)	14.6 –	Nausea or vomiting
					1.0 (0.8, 1.2)	2.5 (1.5, 4.4)	15.0 –	Abdominal pain
							>10 –	Loss of weight
							31.6 –	Jaundice

- <1% = white
- 1-2% = yellow
- 2-5% = orange
- >5% = red

The background risk of pancreatic cancer is 0.25%

What is the **relative risk** of developing pancreatic cancer if the presenting symptoms are loss of back pain and loss of weight?

A : 2%

B : 2% x0.8% = 1.6%

C : Between 1% to 4.3%

D : Risk 1-2%

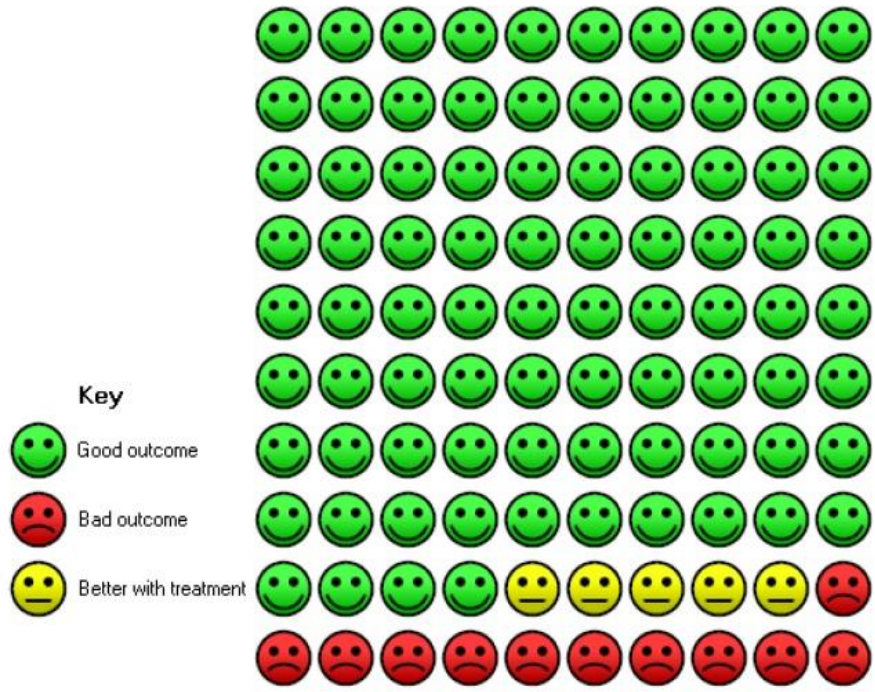
E : Risk of almost 18 times normal

F : Risk of 8 times normal

G : RR cannot be calculated

QUESTION 2:

Cates plot of pain at 2-3 days in children given antibiotics versus placebo for acute otitis media



Calculate the CER
Calculate the EER
Calculate the RR in the treatment group
Calculate the RRR
Calculate the NNT
How many children had no difference in terms of outcome?

QUESTION 3:

Which **ONE** of the following statements best describes the Forrest Plot?

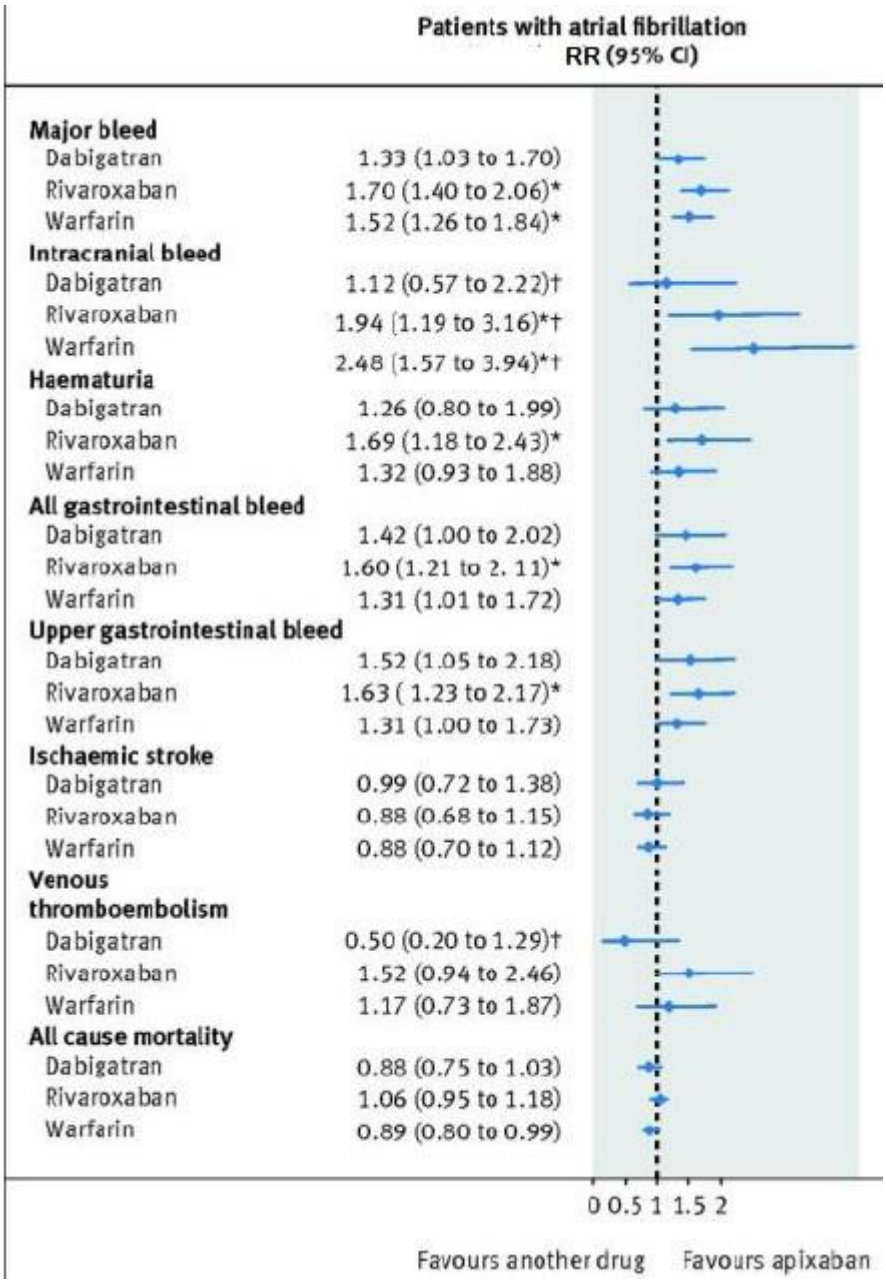
A. Apixaban is significantly safer compared to all other drugs with regards to intracranial bleeds

B. With regards major bleeds, apixaban is not significantly safer compared to dabigatran

C. With regards to upper GI bleeds, apixaban is significantly safer compared to warfarin

D. Warfarin is the only drug to significantly reduce all cause mortality in patients with atrial fibrillation compared to apixaban

E. The point estimate for the relative risk reduction of being warfarin compared to apixaban for all cause mortality is 0.11%



QUESTION 4:

Adults (18 to 64) with learning disability getting long term support from Local Authorities 2014/15 Crude rate - per 1000

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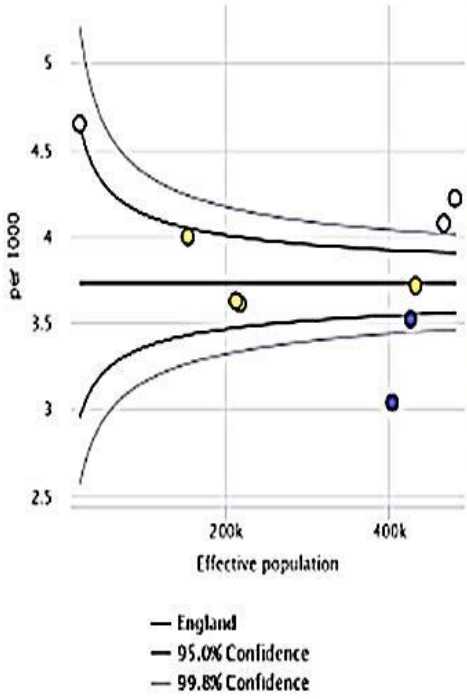

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Area	Value	Lower CI	Upper CI
England	3.73	3.71	3.75
East Midlands region	3.74	3.67	3.81
Derby	4.00	3.69	4.33
Derbyshire	4.07	3.89	4.26
Leicester	3.61	3.36	3.87
Leicestershire	3.04	2.87	3.21
Lincolnshire	3.52	3.34	3.70
Northamptonshire	3.71	3.54	3.90
Nottingham	3.63	3.38	3.89
Nottinghamshire	4.22	4.04	4.41
Rutland	4.65	3.78	5.66

Source: Health and Social Care Information Centre: NASCIS - SALT

In a population of over 300k, which area are you most confident in receiving long term support if you are an adult with a learning disability?

Basic Statistics for the AKT

DEFINITIONS

- **Risk** – the probability that an adverse event will happen
- **Absolute Risk** (**AR**) = number of events/total number of people
- **Absolute Risk Reduction (ARR) of a treatment**

= ARC (Control Event Rate) – ART (Experimental Event Rate)

- **Absolute Risk Increase (ARI) of a treatment** = ART- ARC
- **Relative Risk of an event happening in the treatment group** (**RR**) = ART/ARC
- **Relative Risk Reduction (RRR) of a treatment** = 1 (100%) –RR
- **Number Needed to Treat (NNT)** = 1/ARR where ARR is in decimal form
- **Number Needed to Harm (NNH)** = 1/ARI where ARI is in decimal form

- **Odds Ratio** (**OR**) – Definition

- used to give an **estimate of relative risk** from retrospective case-controlled studies

or

- **odds of an event happening** in the experimental group, expressed as a proportion of odds of it happening in control group

IF RR (or OR) = 1,
there is no significant difference between treatment and control groups

Calculating the Odds Ratio (OR)

Exposure to Risk Factor :		Cases	Controls
	+ve	**a**	**b**
	-ve	**c**	**d**

	Effect	No Effect
Treatment Group	**a**	**b**
Control Group	**c**	**d**

OR = ad/bc

Screening

Screening Test	Disease Present	Disease Absent
+ve	**a**	**b**
-ve	**c**	**d**

Sensitivity : proportion of those with disease correctly identified by the test= **a/a+c**
Specificity : proportion of those without disease correctly identified by test= **d/b+d**
Positive Predictive Value :
proportion of those who test positive who have the disease = **a/a+b**
Negative Predictive Value :
proportion of those who test negative who do not have the disease = **d/c+d**