

# Time of day and influenza vaccination study

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<b>Registration date</b> 12/11/2012	<b>Overall study status</b> Completed	<input type="checkbox"/> Statistical analysis plan <input checked="" type="checkbox"/> Results
<b>Last Edited</b> 05/05/2016	<b>Condition category</b> Other	<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

It is predicted that by 2020 approximately 1 in 5 of the UK population will be aged 65 or over and that by 2050 this could rise to 1 in 2.5. This increase in life expectancy has not been accompanied by an increase in healthy life expectancy; thus, there is a considerable drive to improve the health of older adults. It has long been recognised that older adults are more at risk of both bacterial and viral infections, prompting the introduction of the annual vaccination programme against influenza for adults aged over 65 years. However, the age-related decline in immune function (immunosenescence) reduces the ability of an older individual to mount a successful vaccination response. With age, the quantity (titre) and quality (affinity) of antibody produced in response to vaccination is reduced. Influenza vaccination of young adults provides 65% - 80% protection against illness whereas vaccination of older adults gives only 30-50% protection. A number of studies have sought to use behavioural interventions, such as an acute aerobic or eccentric weights protocol to improve response to vaccination, but recent observational research has revealed that the timing of vaccination administration may also affect immune response. This study aims to determine whether the time of day (morning vs afternoon) affects antibody response to influenza vaccination. Further, other related factors at the time of vaccination will also be measured as these factors may have an effect upon subsequent antibody response.

### Who can participate?

The study involves recruiting over 65 year old males and females from the various surgeries participating in the West Midlands.

### What does the study involve?

The participants are divided into two groups (morning vs afternoon vaccination). The study involves having a blood sample prior to annual influenza vaccination, filling out a questionnaire pack and returning for a follow up blood sample 4 weeks later. Anthropometric measurements (height, weight, waist-hip ratio) are also taken. The results of the tests from the two groups are compared.

### What are the possible benefits and risks of participating?

Participation in this study helps us to find out whether a simple change in the time of vaccination

can help older adults have an improved immune response to vaccination and help protect against influenza. This knowledge could have a big impact upon patient care and medical practice. The only known risk within this study is bruising associated with blood being taken.

Where is the study run from?

The study is being carried out by the School of Sport and Exercise Sciences at the University of Birmingham. However, the participant attends their local GP surgery to have blood samples taken and their influenza vaccination given.

When is the study starting and how long is it expected to run for?

October 2011 to September 2014

Who is funding the study?

Medical Research Council (UK)

Who is the main contact?

Dr Anna Phillips

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## Contact information

### Type(s)

Scientific

### Contact name

Dr Anna Phillips

### ORCID ID

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### Contact details

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United Kingdom  
B15 2TT

### Type(s)

Scientific

### Contact name

Mr Mark Drayson

### Contact details

University of Birmingham  
School of Sport and Exercise Sciences  
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Birmingham  
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# Additional identifiers

## Protocol serial number

RG\_11-053

# Study information

## Scientific Title

Time of vaccination and other factors, and response to the annual influenza vaccine in older adults: a cluster-randomised trial

## Study objectives

Our proposed study aims to confirm that a simple manipulation of the timing of vaccination will improve the immune response against influenza vaccination in older adults. This will yield an intervention that is easy to implement within the NHS, at little or no added cost. This is an observational study comparing antibody responses to influenza vaccination. Participants are cluster randomised according to their surgery.

## Ethics approval required

Old ethics approval format

## Ethics approval(s)

South Birmingham Research Ethics Committee, 04/07/2011, ref: 11/WM/0161

## Study design

Cluster randomised study

## Primary study design

Interventional

## Study type(s)

Other

## Health condition(s) or problem(s) studied

This study involves aspects of ageing related to the immune response following vaccination

## Interventions

The 2 groups (morning vs afternoon vaccination) will be compared. Antibody titres, cytokine levels, sex steroids (cortisol, DHEA, testosterone etc) will be measured at baseline to determine what factors at the time of vaccination may related to antibody response at follow up (4 weeks post vaccine)

## Intervention Type

Biological/Vaccine

## Primary outcome(s)

Antibody response

## Key secondary outcome(s)

1. Cytokine levels
2. Sex steroids
3. Psychosocial factors

**Completion date**

01/10/2014

## Eligibility

**Key inclusion criteria**

Available to attend surgery for morning (9-11am) or afternoon (3-5pm) vaccination and blood samples, and a fasted morning blood sample one month later.

**Participant type(s)**

Patient

**Healthy volunteers allowed**

No

**Age group**

Adult

**Sex**

All

**Key exclusion criteria**

No current condition such as cancer, diabetes, chronic fatigue which can affect response to vaccination. No acute infection e.g. a cold. No adverse reactions to blood sampling e.g. fainting.

**Date of first enrolment**

01/10/2011

**Date of final enrolment**

10/12/2013

## Locations

**Countries of recruitment**

United Kingdom

England

**Study participating centre**

West Midlands CRN

United Kingdom

B15 2SQ

**Study participating centre**  
**North Staffordshire CCG**  
United Kingdom  
ST5 1QG

**Study participating centre**  
**South Staffordshire CCG**  
United Kingdom  
B78 3HF

**Study participating centre**  
**Telford & Wreking CCG**  
United Kingdom  
TF7 4BF

**Study participating centre**  
**Wolverhampton CCG**  
United Kingdom  
WV10 9RU

## **Sponsor information**

**Organisation**  
University of Birmingham (UK)

**ROR**  
<https://ror.org/03angcq70>

## **Funder(s)**

**Funder type**  
Research council

**Funder Name**  
Medical Research Council - Lifelong Health and Wellbeing Initiative (UK) ref: G1001390

**Alternative Name(s)**

Medical Research Council (United Kingdom), UK Medical Research Council, Medical Research Committee and Advisory Council, MRC

### Funding Body Type

Government organisation

### Funding Body Subtype

National government

### Location

United Kingdom

## Results and Publications

### Individual participant data (IPD) sharing plan

#### IPD sharing plan summary

Stored in repository

#### Study outputs

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>	results	23/05/2016		Yes	No