



My PhD journey so far..

**Employment Based PhD
University College Cork**

**‘Improving Antibiotic Use
In Primary Care’**

Ms Mala Shah

Chief II Antimicrobial Pharmacist, HSE Antimicrobial
Resistance and Infection Control Programme

PhD candidate, UCC School of Pharmacy



What is an employment-based PhD?



'THE REMIT OF THE EMPLOYMENT-BASED PHD SCHOLARSHIPS PROGRAMME FOR HEALTH SCIENCE PROFESSIONALS IS:

TO ENHANCE AND SUSTAIN EXCELLENCE IN GRADUATE EDUCATION IN HEALTHCARE AND HEALTH SCIENCES,
TO DEEPEN COLLABORATION BETWEEN RESEARCHERS, CLINICIANS, AND HEALTHCARE AND HEALTH SCIENCE PARTNERS,

TO INCREASE PHD ENROLMENT NUMBERS AND TO DEVELOP PATHWAYS TO WIDEN ACCESS TO PROGRAMMERS'



SCHOLARSHIPS WILL FUND ANNUAL PHD REGISTRATION FEES

PLUS €5,000 PER ANNUM IF FULL TIME OR €2,500 PER ANNUM IF PART TIME FOR ASSOCIATED RESEARCH COSTS, OVER A MAXIMUM OF 4 YEARS (FULL-TIME) OR 6 YEARS (PART-TIME).



THE PHD CANDIDATE WILL REMAIN A SALARIED EMPLOYEE

AND WILL CONCURRENTLY REGISTER AS A PHD STUDENT AT UCC FOR THE DURATION OF THE PHD PROJECT.



College of Medicine and Health
Coláiste an Leighis agus na Sláinte

<https://www.ucc.ie/en/med-health/gradstudies/employment-based-phd-scholarships/>

Employment-based PhD Scholarships Programme
Health Science Professionals

Career to date

- 1999: Qualified as a pharmacist, UK
- 1999-2004: Hospital pharmacist, UK
- 2004 - 2020: Hospital pharmacist, Cork
- Adjunct senior lecturer in UCC School of Pharmacy
- 2020-2022, HSE Community Antimicrobial Pharmacist for Cork/Kerry
- 2022 to current: Chief II Antimicrobial Pharmacist, National AMRIC Team

**2007:
?PhD?**



How it all began...

- Summer 2020, just after job change to community-based role...
- .. I approached by UCC School of Pharmacy colleagues re: Employment based PhD scholarship
- ‘**No way**’ turned to ‘**Why not....**’
 - ✓ Discussed project ideas with new work colleagues
 - ✓ Got employer buy-in to apply
 - ✓ Successful scholarship application
 - ✓ Commenced in April 2021 – part time PhD programme over 6-8 years

Initial plan and Collaborations

- **Initial plan: Pilot use of CRP point of care test in GP OOH service**
- **Collaboration with ICGP and AMRIC GP colleagues**
- **Introduction to Prof Akke Vellinga** -Lead investigator in Ireland for a European study looking at use of POCT and GP antibiotic prescribing for RTIs
 - *Access to study dataset of GP RTI consultations to analyse trends for the Irish data*
 - *Conducted qualitative study as part of the PRUDENCE trial investigating use of POCT in general practice.*
- **Collaboration with OOH service in Cork Kerry through work**
 - *access to antibiotic prescribing data in OOH service to analyse trends*

Change of focus

driven by work priorities and research findings



Challenges in being able to conduct study of GPs using POCT in OOH



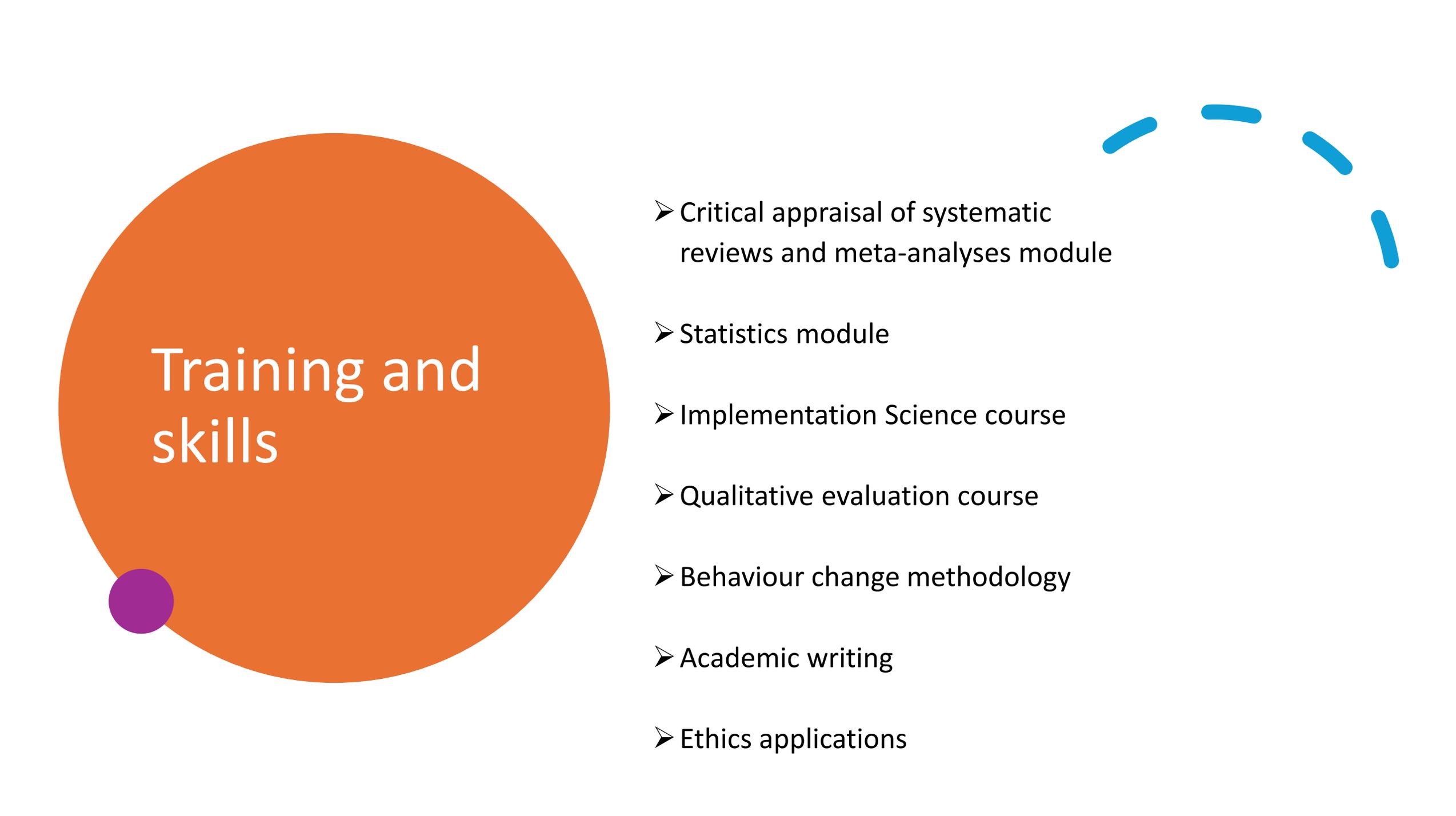
Analysis of GP RTI consultations and OOH antibiotic prescribing – **lots of scope to reduce unnecessary antibiotic prescribing for RTIs.**



Work GP colleagues idea for project aligned:–**Treat Your RTI leaflet.**



New plan: **Mixed methods study to assess the feasibility and acceptability of use of RTI leaflet by GPs during RTI consultations**



Training and skills

- Critical appraisal of systematic reviews and meta-analyses module
- Statistics module
- Implementation Science course
- Qualitative evaluation course
- Behaviour change methodology
- Academic writing
- Ethics applications

Research outputs

J Antimicrob Chemother 2023; 78: 1270–1277
<https://doi.org/10.1093/jac/dkad088> Advance Access publication 28 March 2023

Journal of
Antimicrobial
Chemotherapy

Point prevalence audit surveys of respiratory tract infection consultations and antibiotic prescribing in primary care before and during the COVID-19 pandemic in Ireland

M. Shah ^{1,2*}, A. Fleming ³, T. M. Barbosa³, A. W. van der Velden ⁴, S. Parveen⁵ and A. Vellinga ⁵

JAC Antimicrob Resist
<https://doi.org/10.1093/jacamr/dlae009>

JAC-
Antimicrobial
Resistance

Trends in antibiotic prescribing in primary care out-of-hours doctors' services in Ireland

Mala Shah ^{1,2*}, Teresa M. Barbosa², Gary Stack³ and Aoife Fleming ^{2,4}

Treat your Respiratory Tract Infection

This information is for use during GP consultations with patients aged 3 months old and above presenting with respiratory tract infections (RTIs) where there is no immediate need for an antibiotic.

Patient Name: _____ Date: _____

- Antibiotics do not work for viral infections such as colds and flu, and most coughs.
- Colds, most coughs, sinusitis, ear infections and sore throats are mainly caused by viruses, and antibiotics are not necessary in the majority of cases.
- Your body can usually fight these infections on its own.
- Your doctor will assess whether you need an antibiotic.

<input checked="" type="checkbox"/> Your infection:	Most are better by:
<input type="checkbox"/> Middle-ear infection	3 - 7 days
<input type="checkbox"/> Sore throat	7 days
<input type="checkbox"/> Common cold	14 days
<input type="checkbox"/> Sinusitis	14 – 21 days
<input type="checkbox"/> Cough or bronchitis	21 days

Upper respiratory infections are common among infants in childcare (up to 10–12 per year) but become less common as children get older.

How to look after yourself and your family

- Have plenty of rest to help you get better.
- Drink enough fluids to avoid feeling thirsty.
- Ask your local pharmacist to recommend medicines to help your symptoms or pain (or both).
- A high temperature is a sign the body is fighting the infection and usually gets better by itself in most cases. You can use paracetamol if you or your child are uncomfortable because of a fever.
- Cover your coughs and sneezes. Use a tissue and place it immediately in the bin. Cough or sneeze into your upper sleeve, not into your hands.
- Hand hygiene is essential to help prevent spread of infection to your family, friends and others you meet. Wash your hands with soap and water or use alcohol based hand rub or sanitiser.
- See <https://www2.hse.ie/conditions/common-illnesses/> for further information.



Why you should only take antibiotics when needed

The more antibiotics are used to treat minor conditions, the more likely antibiotic resistance will occur, and that superbugs will develop. This means antibiotics can become ineffective for treating more serious conditions. Antibiotics can cause side effects such as rashes, thrush, stomach pains, diarrhoea, reactions to sunlight and other symptoms. If you are concerned, seek medical advice.

If your condition does not improve

In certain circumstances, your GP may prescribe an antibiotic, as a back-up, in case your condition does not improve after a few days. If you feel better, you do not need to fill the prescription. However, if you do not feel better in _____ days, then fill your back-up antibiotic prescription at the pharmacy. If symptoms get worse or your level of concern is increasing, seek urgent medical attention. Refer to 'When to seek urgent medical attention' section of this leaflet.

Go back to your GP if:

- you are not starting to improve a little by the time given in the 'Most are better by' section.
- your child has a middle ear infection and there is fluid coming out of their ears.

When to seek urgent medical attention

How an infection progresses can sometimes be difficult to predict. If you or your child are getting worse or are sicker than you would expect, trust your instincts and seek medical advice urgently from your GP, local out-of-hours GP service, emergency department or the HSE on 999 or 112. Don't be afraid to ask "Could this be sepsis?". Sepsis can develop when your body has an extreme reaction to any infection and urgent medical attention is needed. It's not always easy to tell if you are developing sepsis. There are lots of possible symptoms.

Some signs and symptoms of sepsis in CHILDREN are:

- very fast breathing
- fits or convulsions
- mottled skin (irregular colour) bluish or pale
- a rash that does not fade when you press it
- unusually sleepy and difficult to wake
- unusually cold when you touch them
- has had no pee or wet nappy for more than 12 hours

In addition, in children under 5 years: not feeding or else vomiting repeatedly
In children under 3 months: a fever of 38°C or more should prompt an urgent medical review.

Some signs and symptoms of sepsis in ADULTS are:

- slurred speech, new confusion, too sick to communicate, drowsy
- extreme shivering, muscle aches, fever
- has not passed urine in the last 12 hours
- shortness of breath, lips tinged with blue
- feels like your heart is racing, dizzy when you sit or stand
- feeling a lot worse. "I feel like I'm going to die"
- skin mottled and discoloured, new rash that is still visible when pressed on with a clear glass (glass test)

Treat you RTI leaflet
published by AMRIC in
2024
Posted to all GPs this
November

Widely used by
GPs

Whats next

- Treat your RTI leaflet feasibility study paper -*accepted for publication*
- Qualitative evaluation of use of RTI leaflet in feasibility study using implementation science frameworks—*currently writing paper*
- Putting it all together – writing thesis -
2026

Juggling work / study / family life

What has helped:

- Online modules
- Online meetings
- Part time means that the waiting game for ethics, reviews less of an issue
- Work generally supportive of PhD
- Great supervisors

Challenges:

- One day per week time allocation: Stop / start - one step forward, two steps back
- Getting buy in from new line managers
- Never enough time...
- Change of job
- Not letting it take over life – prioritising family

Reflections to date

- **Support of supervisors** is key to a smooth PhD journey
- **Support from work colleagues and managers** essential
- **Support (and empathy) of family** helps a lot
- Selecting PhD **work that aligns to overall work priorities, but is not part of routine workplan** is an important distinction to make
- Seeing my **research informing AMS initiatives nationally**, to reduce inappropriate prescribing and improved patient outcomes and patient care.....makes it all worthwhile

A close-up photograph of a person's hand holding a silver and black compass. The hand is wearing a light green long-sleeved shirt. The compass is held over a road junction where a road splits into two. The background shows a sandy, hilly landscape under a clear sky. The text "Different stages of the journey" is overlaid in white, sans-serif font across the center of the image.

Different stages of the journey

Where I hope to be in a year's time
Seeing the light!..



Where I am now..
The final big push??