Dr Lesley Price

On behalf of the SHIP Research Group

Engaging the Public with AMR and Hand Hygiene

PACCARB Public Meeting January 31st 2019

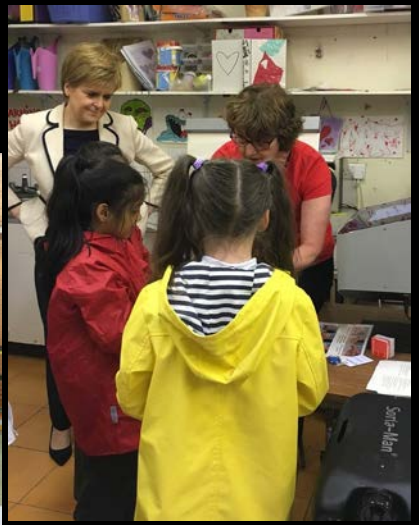
GCU Glasgow Caledonian University

University for the Common Good

Thank you for the invitation. In this presentation I am going to **speak** about our **experiences** as a research group of **public engagement** in which I hope to demonstrate some of the **innovative strategies** we have used and **review** some of **the literature** for public engagement on a large scale.

Next slide please.

The SHIP Research Group



& the public

Public engagement in our research group is **undertaken by all** members of our group: researchers, PhD students, administrators and colleagues within the Department of Nursing & Community Health. The **photograph** on the bottom left hand corner of the screen are the **team** members who I acknowledge for their **contribution** to this work.

The **other photographs** on this slide illustrate some of our public engagement **events**. These are presented to illustrate **who** we consider the **public** to be.

Moving around the photographs in a **clockwise** direction the photograph above the research group is of **residents** attending a community housing association meeting. At the meeting **research group members** took on the **role** of various **stakeholders** to **debate** the role that different **individuals** and **organisations** can play in the preservation of antibiotics.

The next photograph is **Professor Sneeze** during a visit to a **local primary school**. Here Professor Sneeze is helping children understand **why cough etiquette** is important in the **prevention of infections** by getting the children to a **create a "sneeze run,"** which **simulates** the spread of **mucous** in a sneeze.

The photograph in the top right hand corner of the screen is a **pop up stand** held during a event for **people** recovering from a **stroke** and their carers at our **university**.

The photograph below this is **one** of **my favourite ones** because of the **sheer joy** in the **children's faces**. These children are at a **Science Centre** taking part in **our successful Guinness World Record attempt** for the **largest simultaneous hand hygiene lesson**. The lesson was **taught** by our **nursing students** and took place in a **science centre** and many **60+ local primary schools** and included **3089 children**.

The last photograph on the slide is us at **community centre** in a **deprived** area of Glasgow, again engaging with children, but the lady in the background is, **Nichola Sturgeon, the First Minister of Scotland**.

Who do we consider **our public** to be – in short **everyone** who does **not** have a **specialist knowledge** of **infection prevention** or **antimicrobial resistance**. So for the rest of this presentation I will referring to **communication** exchanges between **experts** in **infection prevention** or **antimicrobial resistance** and the **public**, that is **non experts**.

Benefits of public engagement

- Making science relevant to the public
- Building the public trust in science
- Transparency about use of public funds
- Inspiring and informing the public
- Enhancing the well-being of the public
- Improving the quality of research
- Meeting the requirements of policy makers and funder

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National Co-ordinating Centre for Public Engagement - https://www.publicengagement.ac.uk/about-engagement/what-public-engagement
Welcome - https://wellcome.ac.uk/funding/guidance/planning-your-public-engagement
UK Research & Innovation - https://www.ukri.org/public-engagement/
American Association for the Advancement of Science - https://www.aaas.org/resources/communication-toolkit/what-public-engagement

Many **organisations**, including **policy makers** and **funding bodies**, are **expecting healthcare experts** to **engage** with the **public. Historically** there was an expectation that this was to **transfer knowledge** but the **expectations** are **changing**. The **public** are **no longer** just **passive recipients** of healthcare or information, they are being **asked to act** upon this information and behave in ways that **maximises their own health potential**. **Experts** have a **role** to play in helping the public to do this by **providing** health **information** in a manner that is **accessible** to them.

To do this the **public** have to **trust** the **information** they are being given. **Trust** can be **built** by an **open** and **transparent exchange** of **information** about our **antibacterial resistance**. This **transparency** about our work also **holds** us **to account** for use of **public funding** but through this sharing of information an **added benefit** is that the **public** can provide a different **perspective** on it **relevance** and consequentially **insights** into how what we do can be **improved**.

Our research group shares **its work** with the **public** to **enable** them to be **proactive in preventions infection** thus **reducing** the requirement for **antibiotics** and to **encourage** them to have a **role** in **preserving antibiotics.**

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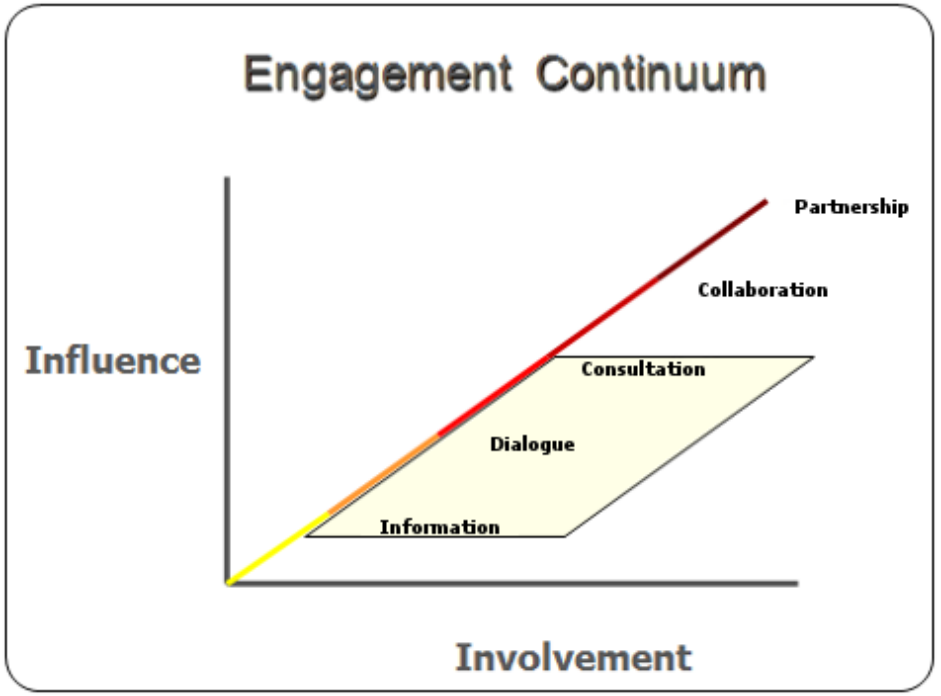
Defining public engagement

Engagement Continuum

ACTIVITY	NATURE OF INTERACTIVITY	LEVEL OF DECISION-MAKING	EXPECTED OUTPUTS
Information access/ Dissemination	One-way	*None*	Better informed outside stakeholders
Policy **Dialogue**	Two-way	*None*	Both sides better informed
Policy / Progammatic **Consultation**	Two-way	*Low*	Views of stakeholders taken into account
Collaboration	Two-way	Shared	Shared goals and action (short term, ad-hoc)
Partnership	Two-way	Equal	Common goals and action (long term, institutional)



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World Bank. 2013. http://documents.worldbank.org/curated/en/177921468152375251/World-Bank-civil-society-engagement-review-of-fiscal-years-2010-2012

There are a number of **key concepts** that need to be **defined** when we are thinking about our **relationship** with the **public** some of which are used **interchangeably** in the l**iterature**. I am referring here particular to the **terms public engagement** and **public involvement**. The **World Bank** has a **useful framework** for **clarifying** these **terms** that demonstrates why **I think** public **engagement** and public **involvement** are two **different** concepts.

Can I ask you to first consider the **figure** on the **right** hand side of the slide. The framework shows **engagement** on a **continuum** with **involvement** and **influence** of the public **increasing** through the **levels** of the continuum. The **table** on the **left explains** the **differenc**es between the different **levels**.

At **bottom** end of the continuum there is **information giving**. Information **flows in one direction** from the **expert** to the **public** and there is **no involvement** of the public in **decision making**. I think this is **public engagement**. **All other levels** in the **framework involve** the public either in the **exchange of information** or **both** the **exchange** of information and **decision making**. I think this is **public involvement**.

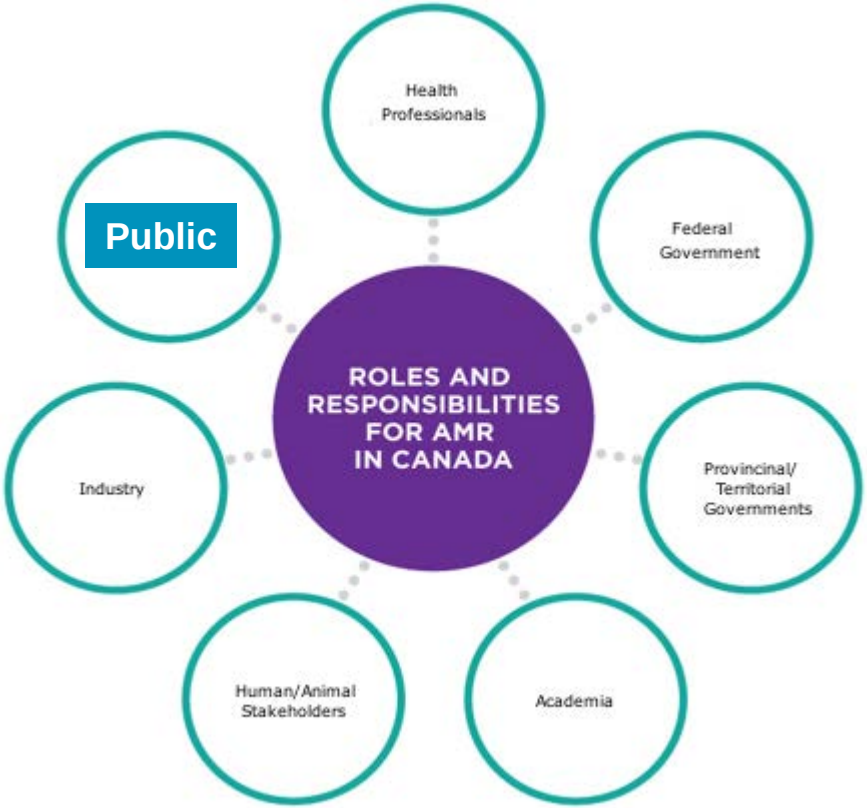
The work I have shown you **so far** is **our public engagement** work but we do **also do public involvement**. This is a more **formalised** process where we have a **group of 20 members of the public**, who meet **twice a year** and **as required** for individual research projects. They **check** our plain English research **summaries, comment** on the **relevance** of our research **ideas**, make **suggestion** for **how to recruit** members of the public to our studies, are **members of project management groups** or **collaborators** on research **funding applications**. The is **public involvement.**

Next slide please.

The public and AMS: the need for engagement

Stewardship

The responsible overseeing and protection of something considered worth caring for and preserving.



Adapted from https://www.canada.ca/en/health-canada/services/publications/drugs-health-products/tackling-antimicrobial-resistance-use-pan-canadian-framework-action.html

To **engage** the **public** we **go out** to **them,** keep the **messages simple** and **create interesting activities** that they want to **participate** in, which makes the **message memorable** and gives **us** an **opportunity** to **talk to them.**

This slide and the next one are **some examples** of some of **interesting activities** we have **done**.

On **European Antibiotic Awareness Day** we wanted to get the **public interested** in **antibiotic stewardship**. We did this by **talking** to them about the **lack of new antibiotics** while they helped **us create a piece of art** depicting this **problem**. Using an "**inked" thumb** we asked the public to insert **one thumb** print in **each letter** of the word **antibiotics**. As they **moved along** the **letters** there was **less and less ink** on their **thumbs**. This created a **fading image** that **corresponded** with the **timeline** below of **the fading production of new antibiotics.**

Below is an image that Very young children created. They like to express their **artist talent** in a **more liberated** manner so we get **groups** of them **drawing** images **of bugs** while we **all talk** about **when** they need to **wash** their **hands.**

Next slide please.

Creating opportunities for interaction with the public

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Next slide please.

Guinness World Record Attempt
Largest Hand Hygiene Lesson (multiple venues)
Wednesday 19th March 2014

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I mentioned earlier that we had been involved in a **successful Guinness World Record** attempt for the largest simultaneous **hand hygiene lesson** with school children. This event not only **involved** the school **children** and their **teachers** learning about hand hygiene. **After** the event **parents and grandparents wrote** to us **telling** how much the children had enjoyed the event and the children were **now teaching them how to clean their hands properly**. Other **adults unrelated** to the children were **also involved**. We want to **leave** each **schoo**l with a **legacy pack** to **remind** the children of **the lessons** they had learnt. This included **hundreds of knitted bacteria and virusem** produced by members of the **publi**c through a **social media campaign**. The **middle** picture on the **top row** shows **examples** of some of these **knitted organisms**. The **middle** picture on the **bottom** row shows the **concentration** on the **faces** of the **children** as they were learning the best way of cleaning their hands during the event.

We have **not one but two Guinness World Records**. The **second one** is shown in the photograph in the **centre** of the screen. We got **419** of our **first year** nursing students to take part in the **largest hand hygiene relay**. To take part the students had to learn the correct hand hygiene technique. 417 of the 419 nursing student were able to do so. We **did this** to make **learning** about hand hygiene **fun and memorable** for them and we were hoping that they would r**emember** this when they were in **practice.**

One year on **international hand hygiene day** we had a **competition** to spread the message about **hand hygiene across the world**. We had a **pop stand in the university** and **demonstrated effective hand hygiene technique** to our **colleagues and students** and **asked** them to take a specially designed **postcard** on holiday with them. During the **holiday** we asked them to **teach someone else** the technique (the technique was included on the postcard). Then, in order to **demonstrate how far** the information about hand hygiene technique had **travelled**, and to be entered into a **prize draw** they had to take a **selfie of themselves and whoever** they had taught and post the photograph **on social media**. The **message travelled** a total of **13, 853 miles** –the equivalent of **half way around the world.**

The **final two photographs** on this slides are when we **planted daffodils** with **school children** at a **local park** and then showed them **how to wash their hands** to get rid of **the soil** and the **othe**r when we created a giant hand covered in “bugs” hand made by the team. **Participants** attending another **pop up stand** were asked to **remove a “bug”** from the hand to **remind them** of the **importance of appropriate hand hygiene**.

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Effectiveness of Interventions to enhance the publics' understanding of AMR and AMS behaviours

Public interventions[1]

Interventions for parents (6/6) and school-children (6/6) & the public (5/8) demonstrated a significant effect on changing knowledge. Also change in parents (4/4) and public AMS behavior (4/7).

Ideally need to address entire population simultaneously, but segment the interventions to target sub-populations.

Professional & public interventions[2,3]

Multimodal interventions increase public knowledge & reduce antibiotic use. Direct education more effective than mass media.

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1. Price L et al (2018) JAC 73 (6): 1464–1478
2. Haynes & McLeod (2015) https://www.nice.org.uk/guidance/ng63/documents/antimicrobial-resistance-changing-riskrelated-behaviours-in-the-general-population-evidence-review-32.
3. King S et al (2016) Rand Health Q 5: (3) 2

When considering the National Action Plan for combatting AMR I assumed that you would want to consider **public engagement** on a **larger** scale than our research group's approach so I thought I would **tell** you about the **findings** of a **systematic review** examining the **effectiveness of interventions** designed to improve the **public's knowledge and or antimicrobial stewardship behaviour** that I conducted.

We reviewed **20 papers** of which **6 targeted school children**. **5** focused on **change in knowledge** and **all 5** showed a **significant improvement**. The **6th study** focused on a **change in behaviour** i.e. **not taking antibiotic for colds and flu** and this too showed **significant i**mprovement. However the **robustness** of the data is **questionable** as there were **4 non controlled** before and after studies and 2 controlled before and after studies and **no longitudinal** follow up.

There were **6** studies that targeted **parents. Al**l studies showed a **significant** increase in **knowledge** following the interventions. In addition, **four of the 6 also focused on behavour change**. These showed a **significan**t improvement in parents' antimicrobial stewardship **behavior** in relation to **not taking antibiotics** for colds or flu, **not getting antibiotics** for their **children**, using **hand sanitizer** or seeking influenza **vaccination.**

The general **public** were the population of interest in **eight** of the included **studie**s. **6 out 8** studies were **mass media campaigns**, including four studies that measured the effects of national campaigns. **One** used **posters and leaflets** while another used a **website**. They either measure **knowledge alone or knowledge and behavior change** with **significant** improvements in **5 out of 8** of the studies. The remaining **three** were **mass media project** that had **no significant effect overall**.

There has **also** been a **systematic review** conducted that involved **simultaneous intervention** for **healthcare professional and** the **public**. It found that **multimodal interventions** increased the **publics knowledge** and **reduced antibiotic use** but **like our systematic** review direct education **was more effective than mass media**.

Next slide please.

Recommendations

- Multimodal interventions[5,7], need for new interventions that are theory driven[4]
- Simultaneous delivery to all stakeholders[6]
- Targeted to the group[1,2,3,6]
- Clear message,[2,3] focused on behavior rather than antecendents[4]
- Fun[2]
- Interactive[2]
- Theory driven implementation plan with evaluation plan[8]

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1. Grayson et al (2015) PloS one 10: e0140509
2. Hofstede (2011) https://doi.org/10.9707/2307-0919.1014
3. Landridge et al (2018) http://dx.doi.org/10.1111/bjhp.12339
4. McParland et al (2017) British Journal of Health Psychology 23(4): 804-819
5. Haynes & McLeod (2015) https://www.nice.org.uk/guidance/ng63/documents/antimicrobial-resistance-changing-riskrelated-behaviours-in-the-general-population-evidence-review-32.
6. Price L et al (2018) JAC 73 (6): 1464–1478
7. King S et al (2016) Rand Health Q 5: (3) 2
8. Kirk et al (2016) https://doi.org/10.1186/s13012-016-0437-z

These **recommendations** are delivered with **two notes of caution**.

Caution is required as the **evidence** of effectiveness of AMS interventions is **heterogeneous** and **does not** present a **large body** of evidence for **anyone** particular **approach** for anyone particular **target group**. Having said that **until** stronger evidence is available it can **provide some direction**. There is **not one approach** that would **suit all. Multimodal intervention** that **targeted specific messages** for **specific groups delivered simultaneous** look **promising**.

Caution is also required about the **clarity** of the **messages** we deliver about AMR. The **message** must be **specific** to a **target** group. The **message** should **inform** the target group about the **problem** and what **they** can **do** about it. Currently with regard to **AMR a lot** of **messages** are focused on **fear or threat** but this may create a wish to hid from or disclaim such messages besides they are misleading as **not all bacteria are bad**.

To help us get this right I recommend **theory driven interventions targeted** at different stakeholder **groups delivered simultaneous**. **Theory** being used to develop the **content** of the interventions, their **implementation** and **concurrent evaluation** as the **literature** suggest this is how to be **effective** and to **develop** the **evidence base**.

Final slide please.

Thank you.

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