

Community Health Conference
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Effective Evaluation of Primary Care Interventions

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Meanings of effective evaluation

- ▶ **Effective in terms of outcomes**
- ▶ **Effective in terms of planning and execution**
- ▶ **Effective in terms of understanding the evaluation participants and their involvement in the design and conduct of the evaluation**

Types of primary care

Can be a policy, service or project directed to one or more of the following:

- ▶ **Health promotion, disease prevention and management**

Other key concepts that primary care underscores

- ▶ **Empowerment**
- ▶ **Universality**
- ▶ **Equity**

Determinants of effective evaluation

- ▶ **Strong efficacy of intervention**
- ▶ **Proper implementation of the intervention**
- ▶ **Appropriate performance indicators**
- ▶ **Rigorous evaluation designs**

Efficacy of interventions - power of the intervention to achieve its desired effects

A few examples to

- ▶ **assess the power of the interventions**
- ▶ **find out how the power can be enhanced**

Efficacy of interventions - power of the intervention to achieve its desired effects

Activities of an intervention aimed to prevent injuries among students of a dance academy (Abma 2005)

- ▶ **All students examined and students given advice on how to deal with physical impossibilities**
- ▶ **Consultations available to students, 3 times a week with a physiotherapist and once a week with an orthopaedic surgeon**
- ▶ **Lessons in anatomy and injury prevention as part of the curriculum**
- ▶ **Lessons for teachers on the prevention of injuries and other related health problems**

Efficacy of interventions - power of the intervention to achieve its desired effects

Was not a success as the purpose and content of the intervention **was not fully established at the start**

- ▶ Only medical experts as informants to Project Group initially
- ▶ Focus on physical health but not the psycho-social component
- ▶ Academy's emphasis on performance – It is there to deliver top talent and pain is the price that needs to be paid

Effective Evaluation means good understanding & involvement of participants

- ▶ **The voice of research participants must be heard**
- ▶ **Making space for research participants in the design and conduct of the research, in data collection and analysis through meetings and workshops**

(Guba and Lincoln 1981)

Efficacy of interventions - power of the intervention to achieve its desired effects

In the Kickbutts Campaign which aimed to reduce cigarette smoking among years 7 and 8 students in Sydney, there were 3 intervention components (Tang et al 1997):

- ▶ Classroom education – to provide students with smoking resisting skills**
- ▶ Parental support – to develop and strengthen parents' skills in assisting their children to remain non-smokers**
- ▶ Supply reduction – to stop tobacco retailers from selling cigarettes to minor**

Efficacy of interventions - power of the intervention to achieve its desired effect/s

Activities taken to stop retailers selling cigarettes to minors

- ▶ **Information package to retailers containing legislative requirements and warning signs with the Police chequerboard logo like and the words “I don’t sell cigarettes to under 18s” and “No proof No purchase”**
- ▶ **Participation of public health and police officers**
- ▶ **Support by all parents and citizen groups including distribution of warning signs & writing to local politicians**
- ▶ **Publicity material in local newspaper**

Efficacy of interventions - power of the intervention to achieve its desired effects

How strong was the power of the supply reduction intervention?

The interventions produced disappointing results, probably because two retailers' key concerns were not addressed

- ▶ the fear of retribution from young people e.g. physical damage to their shops**
- ▶ the small fine imposed once caught**

Efficacy of interventions – How good is this letter?

Dear Parents

Council records indicate that Natasha S is due or overdue for the following vaccination:

TRIPLE ANTIGEN	1ST	2ND	3RD	CUT
POLIOMYELITIS	1ST	2ND	3RD	4TH
MEASLES/MUMPS	TRIPLE BOOSTER			

Please present your child with this card for vaccination at the Lower Civic Hall at 2:20 PM on 14th Dec. If you are unable to attend or wish to change the appointment date, or you do not intend to continue, or are continuing elsewhere or changing address, please contact the HEALTH DEPARTMENT, TOWNHALL, STUART STREET, BALLARAT.

PHONE 313277

Efficacy of interventions – Is this letter better?

Dear Mrs S,

MEASLES is still a problem, in BALLARAT, particularly for children aged under the age of 2 years. Some children suffer severe complications.

The children who are most likely to catch measles are those who have not been immunized. Immunization is very effective. There is almost no chance of side effects. Clinics are held at the Lower Civic Hall in Main Street from 2-3:40 PM EVERY SECOND WEDNESDAY. Immunization is free!

The next clinic is on Wed 14 December. If Natasha is not yet immunized against the measles you should bring him along.

Regards.

Bob Scurry, Health Department, Enquires: PH 313277

Efficacy of interventions

The latter letter was proven better

	1st week	3rd week	5th week
Usual reminder	40	57	67
HBM reminder	49	68	79
% changed	9	11	12

(Hawe et al 1994)

Efficacy of interventions - power of the intervention to achieve its desired effects

Use of the stage model to structure an intervention that aims to promote physical activity

- ▶ **Is “stage matched intervention” necessary?**
- ▶ **What are the constructs that need to be used in structuring a good intervention?**

Implementation of interventions – does it matter

Process evaluation of complex intervention

The UK Medical Research Council Guidance

Some 130 pages long in which use of qualitative methods is an integral component

Implementation of interventions matters

Tobacco retailers not to sell cigarettes to minors

What about a low or high % of retailers

- ▶ **Received the packages**
- ▶ **Visited by public health officers and local police**
- ▶ **Posted up the warning signs**

Implementation of interventions matters

Even if a patient education brochure/leaflet or a community wide media campaign is well developed, it also depends on

Whether or not the intended audience, for example,

- ▶ **Receives the message**
- ▶ **Reads the message**
- ▶ **Understands the message**
- ▶ **Recalls the message**

Implementation of interventions – an example of well executed health education intervention

Educational classes e.g. to prevent students to smoke

- ▶ **Whether all interventions students received the same intervention i.e. a standardized package**
- ▶ **Whether the intervention was administered in the same manner e.g. delivered in 5 lessons in a period of 8 weeks by teachers familiar with the standardized package**
- ▶ **Whether the intervention was well received by students e.g. students' satisfactory level and skills uptake**

Not Good enough???

Implementation of interventions – an example of well executed health education intervention

Educational classes e.g. to prevent students to smoke

Not good enough in the ways that they failed to address issues such as

- ▶ **How to address the pre-existing factors that may influence the students' response to the intervention e.g. parental smoking status and academic achievements**
- ▶ **How to achieve “standardization” when the classes were delivered in schools of different bands**

Implementation of interventions matters

Policy interventions

Examples of poor implementation of policy interventions

- ▶ **Overcoming barriers to handwashing to reduce infections**
- ▶ **Enforcing the restricted sales of cigarettes to minors legislation to reduce teenage smoking**

Examples of good implementation of policy interventions

- ▶ **Speed cameras and radar detectors to reduce speed**
- ▶ **Random breath testing to reduce drink driving**

A couple of lessons learnt

- ▶ **Evaluator-participant dialogue a must in the design of “demand side” behavioral change interventions.**
- ▶ **What about some interventions that address supply side issues?** (WHO 2011; WHO 2014 - NCD Prevention “Best Buys”)
 - **To increase taxes on tobacco products, alcohol and sugar-sweetened beverages**
 - **To restrict exposure to cigarettes, 2nd hand smoking and alcohol**
 - **To reduce dietary salt intake through food reformulation, food labelling and support from canteens and restaurants in schools and public institutions**
 - **To ban trans-fat**

Understanding and involvement of target recipients in the design of interventions

- ▶ **Realist evaluation – to look at the CMO configuration**
- ▶ **Use of methods with rigor, e.g. qualitative methods**
 - **To achieve data saturation**
 - **To ensure that good quality data are collected**
 - **To observe the essential criteria for using focus groups, e.g. to determine composition, size and number** (Tang and Davis,1994; Tang et al 1994; Tang 1997)

Appropriate indicators

In examining the quality of GP

What do you want to measure, at the process or outcome level, such as

- ▶ Practice organization**
- ▶ Patient empowerment**
- ▶ Treatment effectiveness**

Appropriate indicators for quality of GP

5 aspects of organizational practice (Penchansky and Thomas 1981)

- ▶ Availability
- ▶ Acceptability
- ▶ Accessibility
- ▶ Affordability
- ▶ Accommodation

2 Questions:

- ▶ Are they good indicators and what are the change magnitudes?
- ▶ Do evaluators and participants have the same understanding and interpretation of the measures or the terms?

A Patient Enablement Instrument

(Howie et al 1997; Pawlikouska 2015)

As a result of your visit to the doctor, do you feel you are ...

	Much Better	Better	Same or less	N/A
able to cope with life	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
able to understand your illness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
able to cope with your illness	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
able to keep yourself healthy	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
	Much More	More	Same or less	N/A
confident about your health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
able to help yourself	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

- ▶ Do all participants have the same understanding of the statements and is the instrument a good measure?

Doctor patient relationship

- ▶ **Is it an outcome?**
- ▶ **What would be indicators, GP's affective behavior (e.g. trust and empathy) or patients' level of participation?**
(Tang and Davis 1994; Tang 1997; Street 2005; Eveleigh et al 2011)
- ▶ **How can these indicators be measured?**

Effectiveness of treatment

In terms of ...

- ▶ **Accurate diagnosis**
- ▶ **Few intervention side effects**
- ▶ **Speedy recovery**
- ▶ **Relief of symptoms**
- ▶ **Cure of root causes**
- ▶ **Prevention of recurrence**

Will there be any discrepancies in the understanding of the term “EOT” between evaluator/s and participants

Evaluation designs do matter

RCTs are superior particularly in clinical medicine for a number of reasons, including

- ▶ **Essential contributions by the pharmaceutical industry which has already spent billions of dollars over the years to develop interventions of strong efficacy (i.e. medicines) and work out how the interventions must be administered (i.e. medication adherence)**
- ▶ **Availability of reliable and valid biological markers**

Evaluation designs do matter

Limitations and challenges of using RCTs in assessing

- ▶ **Health behavioural change interventions e.g. Mental health interventions in which therapeutic relationship, as a key determinant of treatment success (Tarquinio et al 2015), is deemed to be difficult to be standardized**
- ▶ **Mental health services for migrants (Tang et al 2001; Bhugra et al 2011; Glacco et al 2014)**

Evaluation designs do matter

Limitations of using RCTs, particularly

- ▶ **When randomization and standardization not feasible**
- ▶ **When impact of complex interventions needs to be examined**

Complex interventions means interventions with multiple target groups, settings or sites, interventions, outcome measures and change agents

- ▶ **Are there other alternatives?**

Procedures that are commonly used for assessing complex intervention effects

Evaluation designs

- ▶ **Clustered RCTs**
- ▶ **Stepped wedge cluster RCTs**
- ▶ **Interrupted time series**

Indicators

- ▶ **Confirmatory Factor Analysis**
- ▶ **Structural Equation Modeling**

Achieving Effective Evaluation – what's next?

Do we have the pharmaceutical industry equivalent in primary care which aims to develop interventions of strong and proven efficacy?

- ▶ Establish a taskforce or clearing house for intervention development and implementation**

How can we better facilitate knowledge sharing?

- ▶ Create / Establish a intervention evaluation methods portal**

Summary

- ▶ **The terms “effective evaluation” and “primary care interventions” set out**
- ▶ **Determinants of effective evaluation identified**
- ▶ **Usefulness of using qualitative methods in intervention design and implementation illustrated**
- ▶ **Quantitative designs for assessing impact of complex interventions and indicator development suggested**
- ▶ **Immediate actions for achieving EE recommended**
- ▶ **Use of big data and determination of baselines no mention**

Take home messages

- ▶ **Communicate with evaluation participants to fully establish intervention effectiveness as the start**
- ▶ **Map out intervention implementation procedures in advance and implement as planned**
- ▶ **Use qualitative methods to identify indicator “markers” and quantitative methods such as SEM and CFA to assess appropriateness and adequacy**
- ▶ **Use qualitative methods with rigor**
- ▶ **Use evaluation designs such as randomized cluster control trials, step-wedged trials and time series to assess the impact of complex interventions**

Open discussion

- ▶ **List the three messages from the ppt slides you find most or least useful?**
- ▶ **To what extent do you agree or disagree with the messages set out in the ppt slides?**
- ▶ **What messages you would like to add to or take out from the ppt slides?**
- ▶ **What about the suggestion of setting up a taskforce or clearing house for intervention development and implementation?**
- ▶ **etc, etc, etc**