



# Nimble RCTs

## A Powerful Methodology in the Program Design Toolbox

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# Challenge

A = Designing the right program or policy

B = Implementing the chosen program or policy well

Success = A x B



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# What goes into “B”?

Suppose a program is selling something  
(immunizations, savings accounts, rainfall insurance, mobile money,  
etc.)

Good marketing (text, testimonial, channel, color, etc)

Right pricing

Offer timed on the right day

Offer timed at the right time

Offer sold to the right person in the household



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# Not-so-Nimble

Can be good



Can be not-so-good



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# Nimble

Can be good



Can be not-so-good





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# Outline

- What Are Nimble RCTs?
- Uses
- Pros & Cons
- Basic Requirements for Successful Testing
- Examples
  - What can go right
  - What can go wrong
- Conclusion:
  - Some Guiding Principles: The Goldilocks CART



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# What Are Nimble RCTs?



Jack Be Nimble Clipart





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## Nimble RCTs...

- AKA rapid fire or A/B tests
- Short-term outcomes
- Often operational questions like take-up (buying, accepting, messaging, clicking, viewing)
- Typically use administrative data
- Key distinguishing features:
  - Faster than traditional RCTs
  - Cheap (if no surveys involved), maybe even negative cost
  - Operational focus (typically)



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# What Can You Measure with a Nimble RCT?

- Short-term outcomes for which good administrative data is available, such as:
  - Product take-up
  - Program enrollment
  - Attendance
  - Adherence

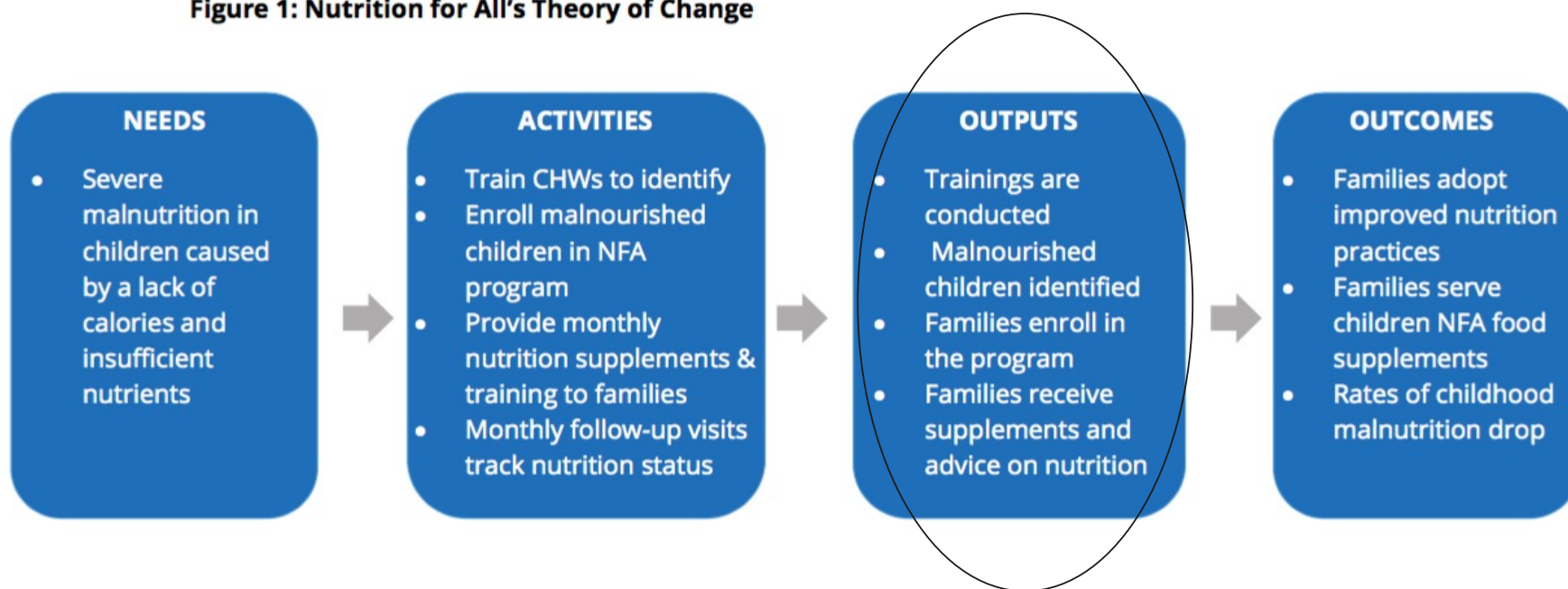
i.e., outcomes that are earlier or “higher-up” in the theory of change



# What Do We Mean by Higher Up on the ToC?

## Example of a Theory of Change:

Figure 1: Nutrition for All's Theory of Change



\*The organization and its theory of change are fictional.



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# Key Point

RCTs can be done badly.

And so can Rapid-fire RCTs.

What makes an RCT bad??

- Technical mistakes (not random; too small sample; poor measurement)
- Theoretical mistakes (no attention to “why”, black-box questions)



# How Do Nimble RCTs Differ from Traditional RCTs?

	Rapid-Fire RCTS for Product Design	Welfare Impact RCTS
Intervention	Usually a <b>low-cost modification</b> to an existing product	A modification to an existing product <b>or</b> an entirely new product.
Data Sources	Largely <b>administrative</b> (internal databases such as usage logs, transaction histories or click rates)	Administrative <b>&amp; survey</b> (including household survey collection)
Outcomes	Limited to first-order outcomes like <b>take-up and usage</b> of the product in question	<b>Welfare</b> outcomes such as income or consumption, as well as usage of complementary and substitutable products



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# Pros & Cons



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# Pros

- Credible insights into program design
- Quick results and highly actionable data
- Relatively low cost
- Useful first step



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## Cons

- Limited outcomes measurement
- Limited ability to generate knowledge
- Small effect sizes
- They usually require large samples





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# Basic Requirements

- A program or service that can be varied
- The right question (actionable)
- Sample size (large)
- Data systems (credible data; not all admin data are)
- Analytic capacity



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## Examples: What can go right

- Jams
- Loan marketing
- Savings reminders



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From which set would you choose?

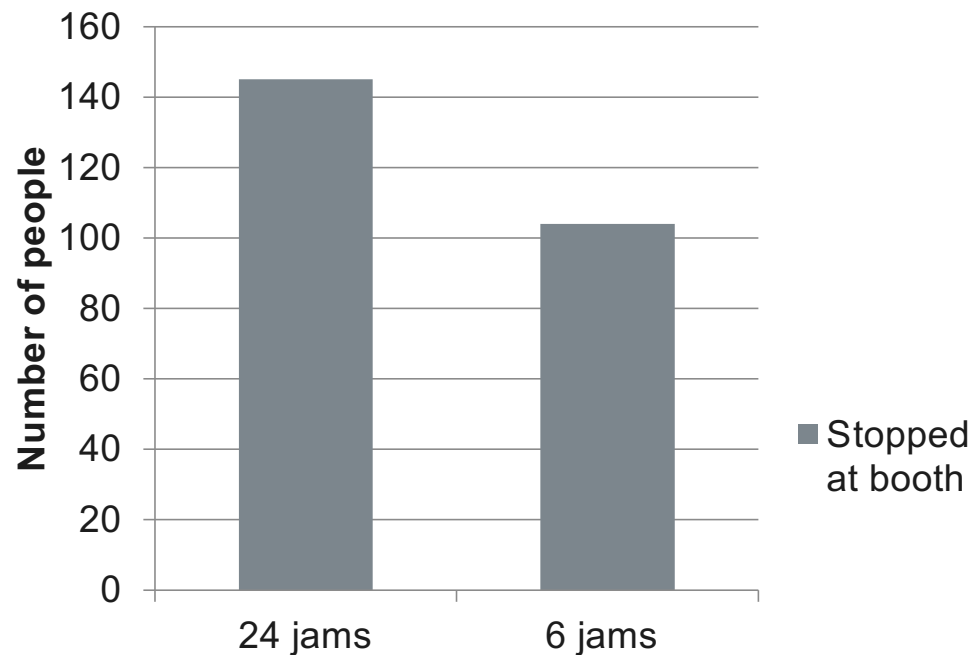


or



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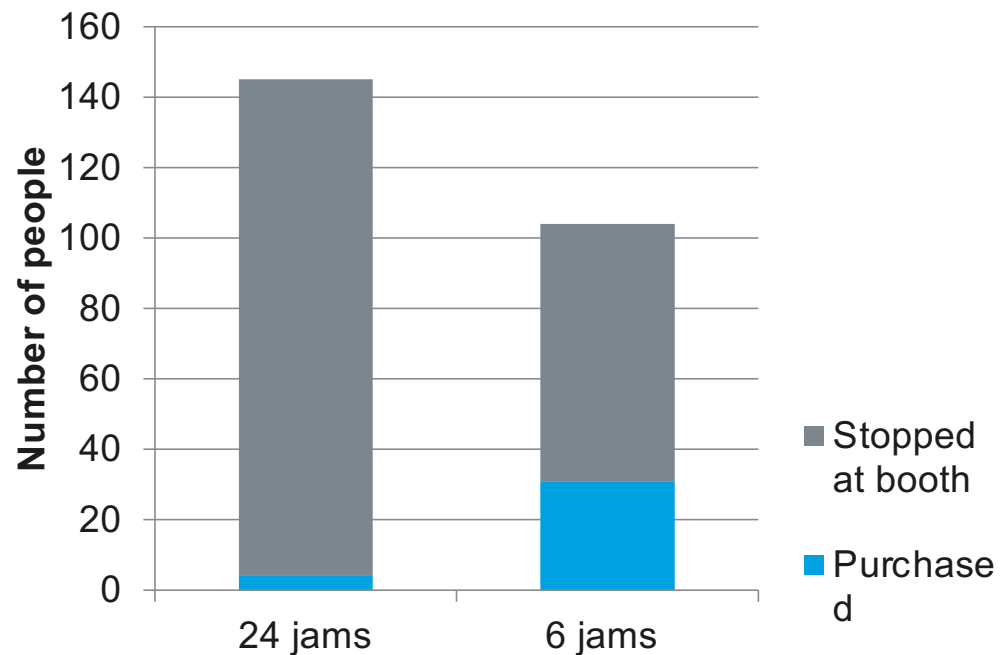
# Jams: The results



Sheena Iyengar and Mark Lepper. "When Choice is Demotivating: Can One Desire Too Much of a Good Thing?" *Journal of Personality and Social Psychology*, 2000, Vol. 79, No. 6, 995-1006



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# More choices or fewer choices?

Account Number 105349191



June 24 2003

**A special rate for you.**

Dear [Redacted]

Congratulations! As a valued client, you are eligible for a special interest rate loan. This is a limited time offer so please come in by 31 October 2003 to apply.

Enjoy low monthly repayments with this offer! For example:

LOAN AMOUNT	LOAN TERM	MONTHLY REPAYMENT
R2000	6 MONTHS	R200.56

LOANS AVAILABLE IN OTHER AMOUNTS SUBJECT TO TERMS & CONDITIONS

There are no hidden costs. What you see is what you pay.

**How to apply:**

Bring your ID book and latest payslip to your usual branch at 27 Church Street Pietermaritzburg, by **31 October 2003**.

*J. Ncube*  
Mrs J. Ncube  
Branch Manager

P.S. Unfortunately, if you have already taken a loan since the date this letter was issued, you do not qualify for this offer.

27 Church Street  
Pietermaritzburg  
3201  
Tel: 033 845 4830

**BUSINESS HOURS**  
MON - FRI 08:00 - 16:00  
SAT 08:00 - 12:00  
**WE SPEAK ZULU**

the trusted way  
to borrow cash

25 September 2003

Shop 9B, Pinetown Arcade  
Hill Street  
Pinetown 3600  
Tel: 031 717 8950

**BUSINESS HOURS**  
MON - FRI 08:00 - 16:30  
SAT 08:00 - 12:00

**A special rate for you.**

Congratulations! As a valued client, you are now eligible for a special interest rate on your next cash loan from [Redacted]. This is a limited time offer, so please come in by 31 October 2003

**You can use this cash to buy an appliance, or for anything else you want.**

Enjoy low monthly repayments with this offer! For example:

	4 Months	6 Months	12 Months
R500	R149.95	R108.28	R66.62
R1000	R299.90	R216.57	R133.23
R2000	R599.80	R433.13	R266.47
R4000	R1199.60	R866.27	R532.93

LOAN AVAILABILITY SUBJECT TO TERMS & CONDITIONS

Loans available in other amounts. There are no hidden costs. What you see is what you pay.

**If you borrow elsewhere you will pay R280.14 more in total on a R350.00, 4 month loan.**

**How to apply:**

Bring your ID book and latest payslip to your usual branch, by **31 October 2003** and ask for **Mrs. Gloria Dlamini**.

Mrs. Gloria Dlamini  
Customer Consultant

P.S. Unfortunately, if you have already taken a loan since the date this letter was issued, you do not qualify for this offer. Comparison based on a competitor's interest rate of 25%.



# SMS Messages to Increase Voluntary Retirement Savings in Colombia

IPA partnered with Colpensiones and the National Planning Department



- Main Question** Can an SMS campaign encourage low income informal workers to save more into their voluntary retirement accounts (BEPS)?
- When** From September to December 2016, after Colpensiones launched a nationwide Lottery to incentivize participation in the BEPS program
- Sample size** 175,750 BEPS users received SMS (at least one a month, up to four), the remaining 245,720 users formed the control group
- Design** Sample divided into twenty treatment groups, each receiving a combination of saving reminder and lottery incentive messages



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# Wave 1 Results: Any Message

## Active users

Messages greatly enhanced saving behaviors, leading to:

- More frequent deposits (+62%)
- More deposited (+42%)

## Inactive users

Messages were not particularly effective in convincing users to save for the first time. Although, in the case they did, newly activated users:

- Deposited more frequently (+75%)
- More deposited (+5%)





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# Wave 1 Results: Different Messages

## Frequency for Active Users:

- 1 message: # of deposits up 4.5%
- 2 messages: # of deposits up 151%
- 4 messages: # of deposits up 19%

## Frequency for Inactive Users:

- 1 message: # of deposits up 57%
- 2 messages: # of deposits up 79%
- 4 messages: # of deposits up 64%

## Content

Combining reminders with lottery incentive messages produced the higher impact:

- 82% increase in the number of deposits
- 56% increase in the amount deposited



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# Continuing the Experiment

During 2017-2018, IPA will continue to work with Colpensiones to run three additional experimental waves to:

1. Replicate and unpack the Wave 1 frequency result
2. Evaluate new strategies targeted at inactive users
3. Examine the persistence of the Wave 1 effects
4. Test design variations of the BEPS annual statement

A similar partnership with CONSAR in Mexico will test the impact of a similar design on a higher-income and more formal population.



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# What Can Go Wrong

- Technical: Bad randomization, sample size, poor measurement, etc.
  - Example: Peru, re-randomized monthly bank messages for repayment
- Theoretical: Package A versus Package B problem
  - Example: USDA marketing letters for micro-loans for farmers in the USA





Dear farmername,

**Why am I getting this letter?**

We at the Farm Service Agency (FSA) are approaching farmers in your area to encourage farmers like you to learn more about **microloans**: direct farm operating loans of *up to \$50,000* designed to meet the needs of farmers like you in smaller, non-traditional, and niche-type operations.

Your microloan can help you grow your farm by purchasing livestock and feed, farm equipment, fuel, farm chemicals, and insurance and covering other operating costs, including living expenses.

Thousands of farmers like you find microloans are the right fit for their farms – microloans have:

- Only one short application document. (Applicants must qualify)
- Streamlined balance sheet & credit requirements.
- Experience and production record requirements designed for farmers like you.
- No minimum loan amount – and up to \$50,000.
- No down payment required.

FSA officers are here to help you prepare and submit your application with one-on-one assistance – contact your local office today and make this season a fresh start.

Happy farming!

Val Dolcini  
Administrator,  
USDA Farm Service Agency



**What should I do next?**

To grow your farm with a microloan of up to \$50,000, contact position name at phone or email

Start your application *today* to ensure your farm's success this growing season.

P.S. Check out the microloan fact sheet at [www.fsa.usda.gov/micro](http://www.fsa.usda.gov/micro). Spread the word!  
¿Habla español? [www.fsa.usda.gov/micro.esp](http://www.fsa.usda.gov/micro.esp)

USDA is an equal opportunity employer



Dear farmername,

**Why am I getting this letter?**

We at the Farm Service Agency (FSA) are approaching farmers in your area to encourage women like you to learn more about **microloans**: direct farm operating loans of *up to \$50,000* designed to meet the needs of farmers in smaller, non-traditional, and niche-type operations.

Thousands of women have found microloans to be the right fit for their farms and have received loans totaling over \$50 million to help grow their farm. Microloans have:

- No minimum loan amount – and up to \$50,000.
- No down payment required.
- Only one short application document. (Applicants must qualify)
- Streamlined balance sheet & credit requirements.
- Experience and production record requirements designed for farmers like you.

FSA officers are here to help you prepare and submit your application with one-on-one assistance – contact your local office today and make this season a fresh start.

Happy Farming!

Val Dolcini  
Administrator,  
USDA Farm Service Agency

P.S. Check out the microloan fact sheet at [www.fsa.usda.gov/micro](http://www.fsa.usda.gov/micro). Don't miss out on an opportunity that has helped other women farmers!  
¿Habla español? [www.fsa.usda.gov/micro.esp](http://www.fsa.usda.gov/micro.esp)

USDA is an equal opportunity employer



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## 2015

- Agricultural Census (NASS)
- Zip code level randomization
- Sent to all primary operators in a treatment zip code
- Regional
- Blocked by state and decile of targeted population

## 2016

- SCIMS (FSA)
- Individual level randomization
- National
- Sent to female operators
- Spillover design



# Results

TABLE 1— REGRESSION RESULTS

Dependent variable = 1 if Borrowed under program	Experiment 1 <sup>a</sup>	Experiment 2
Direct effect of treatment	0.00056404*** (0.000167)	-0.00006748 (0.0001183)
Control in treated county (spillover effect)	--	-0.0001437 (0.0001184)
Constant	2.21E-16*** (5.39E-17)	0.001323** (0.0001699)
N	285,147	548,546



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## Conclusion: Nimble RCTs

- A powerful methodology in the program and product design toolbox
- A rigorous and cost-saving measure
- A great way to adapt an evidence-backed program in a new context/with a different population
- A way to improve design through effective tweaks (not a way to measure overall programmatic impact).
- ***A complement, not substitute for welfare-measuring RCTs***



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# The Goldilocks Challenge





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# CART Principles

## **Credible**

- Do the findings accurately answer the question?

## **Actionable**

- Do you have a plan for all possible reasonable outcomes from the data?

## **Responsible**

- Will the data generate enough guidance to warrant the expense?

## **Transferable**

- Can the findings be applied to other organizations?



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# Thank you!

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Yale University

Innovations for Poverty Action

M.I.T. Jameel Poverty Action Lab

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# Examples from IPA's Portfolio

**Text messages from bank → savings deposits & balances:** Varied gain/loss, mention of goal, etc.

**Text messages from bank → repayment of loans**

- **Success:** Philippines. Including Account Officer name → higher repayment
- **Failure:** Peru. Messed up randomization, re-randomized individuals each month

**Listening rates of messages in Liberia:** Testing listening rates of different audio messages aimed at reducing intimate partner violence as preliminary "lab" work

**Mobile money take-up in Pakistan:** Worked with Pakistan's leading mobile money provider, [Telenor Easypaisa](#), to explore ways to increase adoption and usage of the mobile money among unbanked poor



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# Appendix

# Wave 1 Research Design

		Lottery Incentive SMS			
Message type		Personalized	Social Comparison	Generic	Control (no Lottery SMS)
Saving Reminder SMS	Standard BEPS (no change)	3,650 Active 7,000 Inactive	3,650 Active 7,000 Inactive	3,650 Active 7,000 Inactive	2,000 Active 2,000 Inactive
	Social comparison	3,650 Active 7,000 Inactive	3,650 Active 7,000 Inactive	3,650 Active 7,000 Inactive	2,000 Active 2,000 Inactive
	Generic reminder	3,650 Active 7,000 Inactive	3,650 Active 7,000 Inactive	3,650 Active 7,000 Inactive	2,000 Active 2,000 Inactive
	Call to the future	3,650 Active 7,000 Inactive	3,650 Active 7,000 Inactive	3,650 Active 7,000 Inactive	2,000 Active 2,000 Inactive
	Control (no Savings SMS)	3,650 Active 7,000 Inactive	3,650 Active 7,000 Inactive	3,650 Active 7,000 Inactive	Pure control



# Wave 1 Message Content

<b>Personalized (Option 1)</b>	WIN with BEPS lottery! Save \$5,000 this week and participate to win a \$50,000 DEPOSIT in your BEPS account. Colpensiones 018000410779
<b>Personalized (Option 2)</b>	WIN with BEPS lottery! Save \$XX,XXX[1] more this month and participate to win a MOTORBIKE! Colpensiones 018000410779
<b>Personalized (Option 3)</b>	WIN with BEPS lottery! Save \$XXX,XXX more this year and participate to win an \$80 million bonus for the purchase of a HOUSE! Colpensiones 018000410779
<b>Social comparison</b>	Just as XX,XXX BEPS users already won \$50,000 for their BEPS account, you can too WIN by saving weekly through Via Baloto[2]. Colpensiones 01800041077
<b>Generic</b>	Colpensiones invites you to save every week to participate in BEPS lottery. The more you save the more opportunities you have to win. Colpensiones 018000410777

<b>Standard BEPS</b>	Get BEPS Life Insurance and funeral protection, Colpensiones invites you to save in BEPS for free. Go to VIA BALOTO and save NOW. Colpensiones 018000410779
<b>Social comparison</b>	Last month XXX,XXX Colombians saved in their BEPS account, you too can secure your future. Save NOW in VIA BALOTO. Colpensiones 018000410779
<b>Generic reminder</b>	Colpensiones reminds you: do not forget to SAVE in your BEPS account to protect your future! Go to VIA BALOTO and save NOW. Colpensiones 018000410777
<b>Call to the future</b>	The future comes sooner than you think! Think about the life you want in your old age and save in BEPS today. Save now in VIA BALOTO. Colpensiones 018000410777

