Statistics Canada's experiences in using Paradata to manage Responsive Collection Design CATI household surveys

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Telling Canada's story in numbers

CANADA 150

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Canada

Outline

- Introduction

- RCD strategy

- Active management for RCD

  - Survey monitoring and key indicators
  - Monitoring and decision making tools
  - Some examples

- Conclusion and highlights

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Introduction

- Responsive Collection Design (RCD) is an approach that uses the information available prior and during data collection to adjust the collection strategy for the remaining in-progress cases

- First two RCD surveys in 2009 and 2010
  - Used control groups

- Since then, several RCD surveys were conducted
  - Fall 2015, up to 5 concurrent RCD surveys in the field

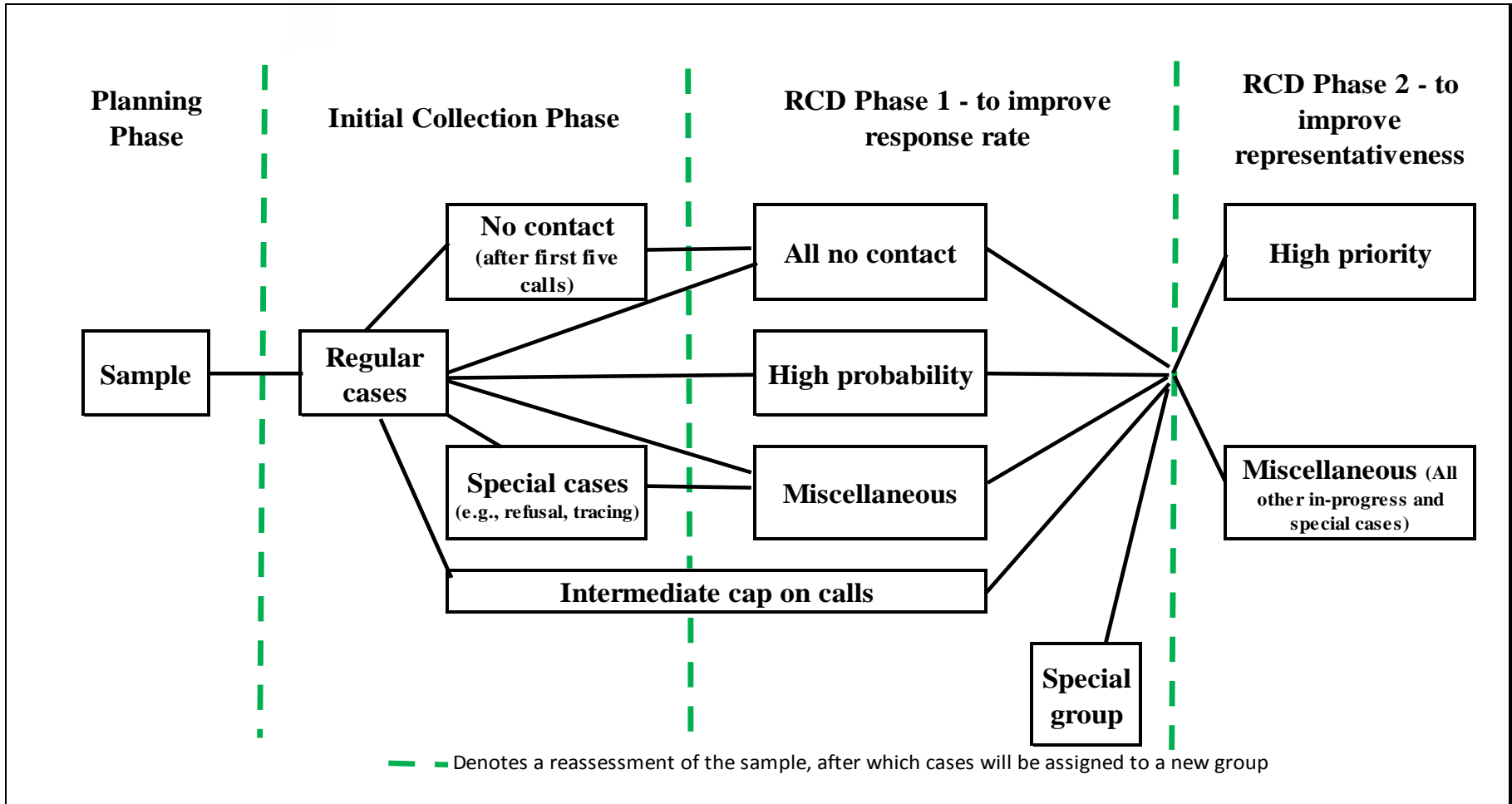- ➢ Since January 2015, all CATI surveys use RCD strategy (with a few exceptions)

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RCD objectives

- Improve response rate

- Improve sample representativeness

- Reduce cost

- Reduce nonresponse bias

- Any combination of these potential objectives

  - Statistics Canada strategy aims to improve both response rate and sample representativeness

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RCD Strategy Overview

| Planning Phase | Initial Collection Phase | RCD Phase 1 - to improve response rate | RCD Phase 2 - to improve representativeness |

Planning Phase → Sample → Regular cases → No contact (after first five calls), Special cases (e.g., refusal, tracing), Intermediate cap on calls → All no contact, High probability, Miscellaneous → High priority, Miscellaneous (All other in-progress and special cases), Special group

Denotes a reassessment of the sample, after which cases will be assigned to a new group

Active Management (AM)

- Set of plans and tools to manage data collection <u>while in progress</u>

- In addition to general AM objectives, AM is also used the RCD context:
  - to provide timely information on survey progress and performance using key indicators
  - to decide the right moment to initiate RCD phases
  - to determine if interventions are required
    - If so, determine which ones are the most appropriate to meet RCD objectives
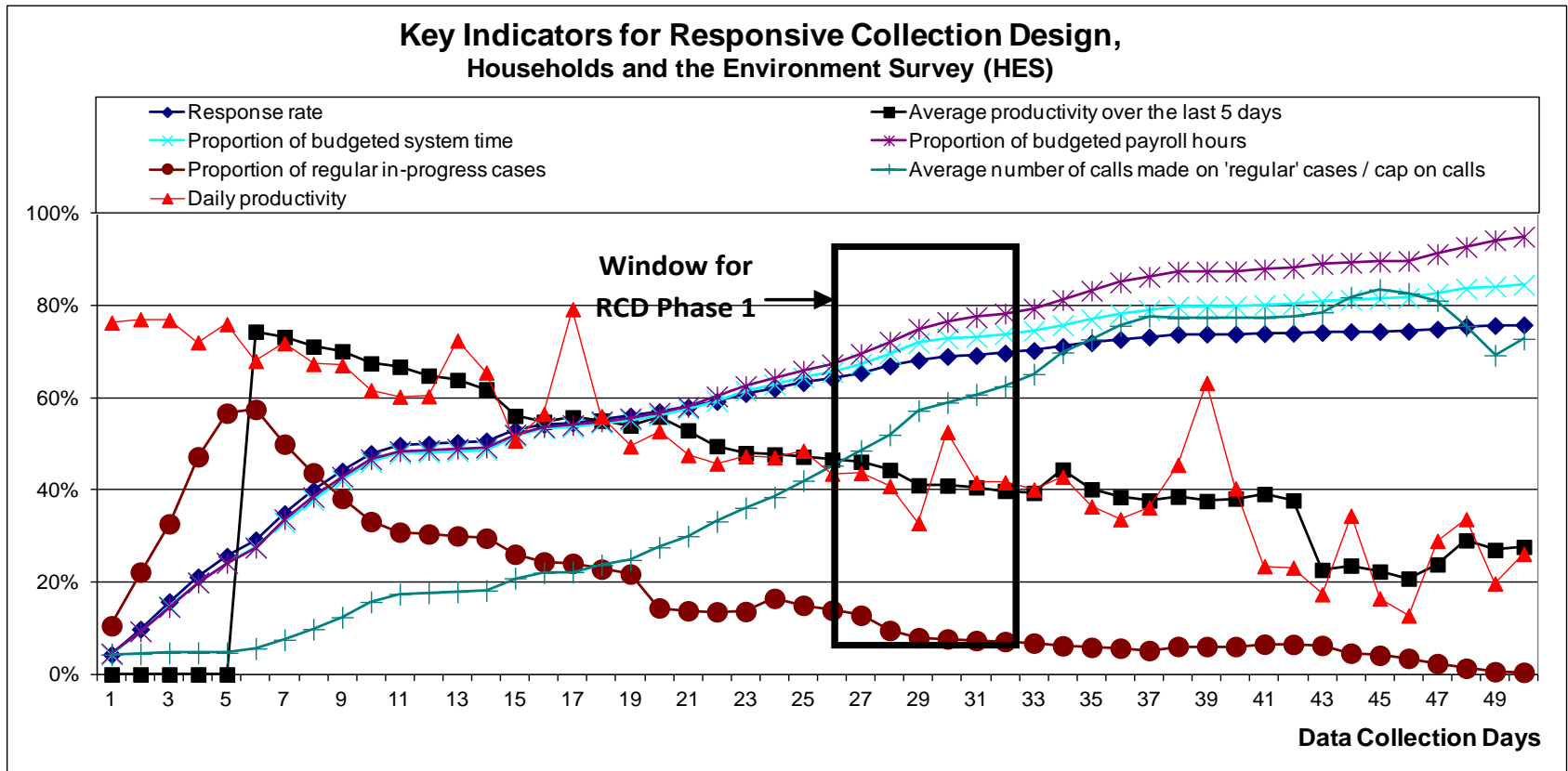
Survey Monitoring

- Key indicators
  - Response rate (by domains of interest)
  - Cost and budget (% of budget spent)
  - Productivity
  - Responding potential of in-progress cases
  - Efforts and results
  - Representativeness indicator (variability between response rates)

➢ Also used to identify when to start RCD Phase 1 and 2

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Adjustment Strategy - Key Indicators to Identify Start of RCD Phase 1

- Decision based on survey progress in terms of response rate, productivity, proportion of budget spent (cost) and responding potential of in-progress sample

Key Indicators for Responsive Collection Design,
Households and the Environment Survey (HES)

Legend:
- Response rate
- Proportion of budgeted system time
- Proportion of regular in-progress cases
- Daily productivity
- Average productivity over the last 5 days
- Proportion of budgeted payroll hours
- Average number of calls made on 'regular' cases / cap on calls

Window for RCD Phase 1

Data Collection Days

RCD Dashboard - Example for RCD Phase 1

- Dashboards are used to identify when to start both RCD phases (i.e. the window) to facilitate interpretation and objective decision-making
  - RCD phase 1: 6 conditions, RCD phase 2: 7 conditions
- Yellow (=3 or 4) and red lights (=5 or 6) signal when many conditions are met

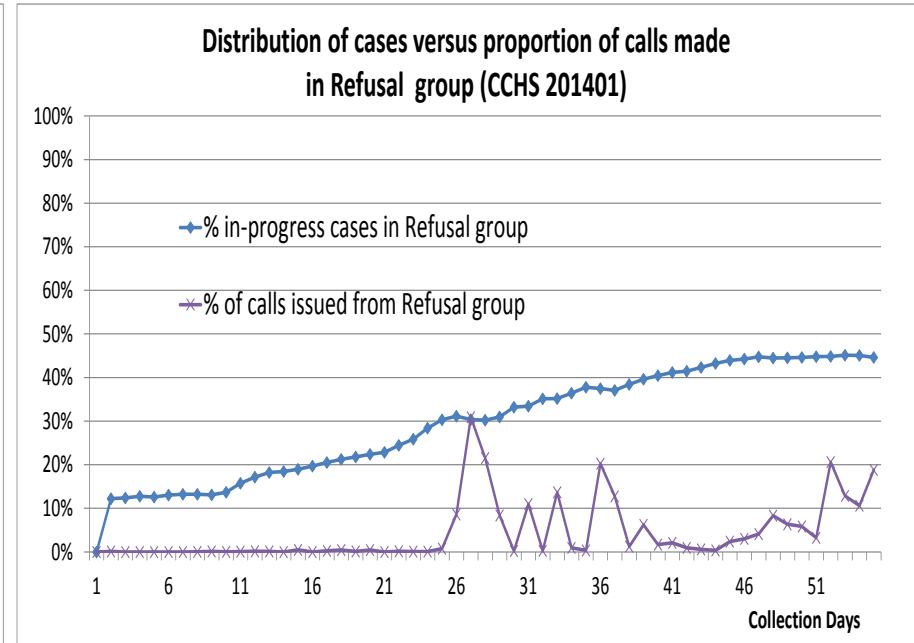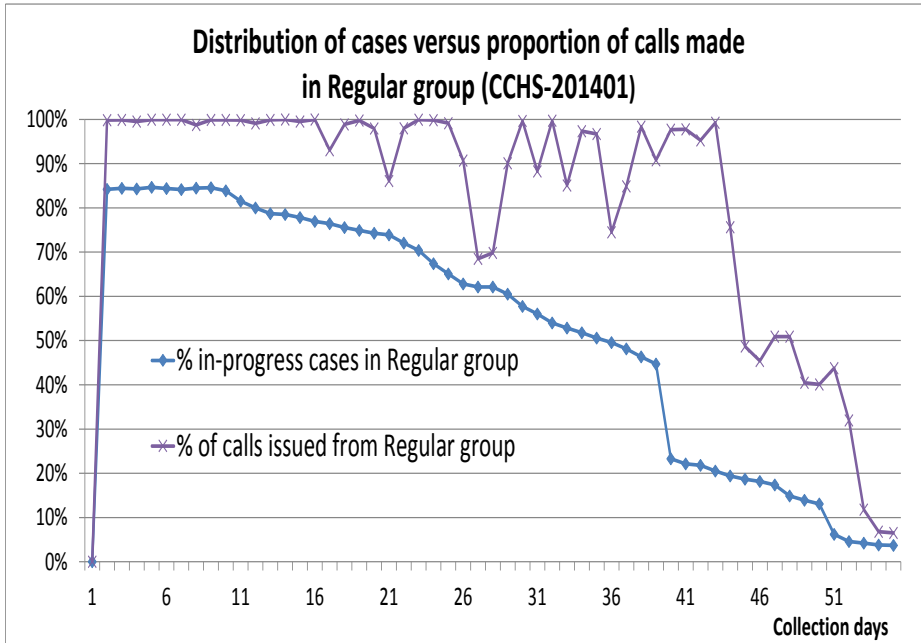| Regional Office	Response Rate		Productivity (Average over last 5 days (%))			Budget and Cost				Propensity of In-Progress Cases				Sum of conditions
	Response Rate %	Cond. 1	Initial	Current	Cond. 2	% of budget payroll hours	Cond. 3	% of budget system time	Cond. 4	% of regular In-progress cases	Cond. 5	Average number of calls for regular in-progress cases divided by the cap on calls	Cond. 6	
Edmonton	52.2%	1	64.3%	41.6%	1	56.6%	1	62.4%	1	28.3%	0	7.2	0	4
Halifax	52.6%	1	63.6%	45.5%	1	62.8%	1	69.8%	1	27.0%	0	7.7	0	4
Sherbrooke	46.3%	0	66.9%	58.3%	1	49.8%	0	50.7%	0	34.5%	0	3.4	0	1
Sturgeon Falls	64.2%	1	74.4%	46.6%	1	67.2%	1	65.6%	1	13.9%	1	11.3	1	6
Winnipeg	62.4%	1	69.9%	46.8%	1	69.8%	1	69.0%	1	12.5%	1	13.0	1	6

Other Survey Monitoring Examples

- RCD key indicators (dashboard)
  - Interviewing progress, results and efforts
  - Refusal conversion efforts and results

- Response rate by domain of interest - Example
  - Priority and representativeness

- In-progress cases - Example
  - Daily distribution of cases and calls issued by Blaise group
  - Daily efficiency by Blaise group

- Several other ad hoc tools
  - Used to identify problems or emerging issues

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Response Rate by Domain of Interest – Priority for RCD Phase 2

RO	Health Region (HR)	Region Name	Sample	Response	Out-of-scope	Observed Response Rate in Field (H)	Expected Response rate (K)	Expected - Observed Response rate (K-H)
HFX	1011	NF- Eastern Health Authority	133	82	13	68.3%	65.0%	-3.3%
HFX	1012	NF- Health and Community Services Central Region	81	53	9	73.6%	65.0%	-8.6%
HFX	1013	NF- Health and Community Services Western Region	75	44	11	68.8%	70.0%	1.3%
HFX	1014	NF- Labrador-Grenfell Health Authority	51	23	9	54.8%	60.0%	5.2%
HFX	1101	Kings County	31	15	6	60.0%	60.0%	0.0%
HFX	1102	Queens County	85	44	20	67.7%	65.0%	-2.7%
HFX	1103	Prince County	63	33	11	63.5%	65.0%	1.5%
HFX	1210	Zone 1 (Yarmouth/South Shore)	70	40	11	67.8%	70.0%	2.2%
HFX	1223	Zone 2 (Kentville)	53	39	9	88.6%	75.0%	-13.6%
HFX	1230	Zone 3 (Truro)	63	40	8	72.7%	70.0%	-2.7%
HFX	1240	Zone 4 (New Glasgow)	60	35	8	67.3%	70.0%	2.7%
HFX	1258	Zone 5 (Cape Breton)	74	32	13	52.5%	70.0%	17.5%
HFX	1269	Zone 6 (Halifax)	118	66	17	65.3%	75.0%	9.7%
HFX	1301	Region 1 (Moncton)	81	55	11	78.6%	75.0%	-3.6%
HFX	1302	Region 2 (Saint John)	73	49	9	76.6%	75.0%	-1.6%
HFX	1303	Region 3 (Fredericton)	75	46	14	75.4%	75.0%	-0.4%
HFX	1304	Region 4 (Edmunston)	45	28	7	73.7%	65.0%	-8.7%
HFX	1305	Region 5 (Campbellton)	42	22	7	62.9%	75.0%	12.1%
HFX	1306	Region 6 (Bathhurst)	59	34	7	65.4%	70.0%	4.6%
HFX	1307	Region 7 (Chatham)	44	23	3	56.1%	70.0%	13.9%

Distribution of Cases vs Proportion of Calls

Distribution of cases versus proportion of calls made in Regular group (CCHS-201401)

- % in-progress cases in Regular group
- % of calls issued from Regular group

Collection days

Distribution of cases versus proportion of calls made in Refusal group (CCHS 201401)

- % in-progress cases in Refusal group
- % of calls issued from Refusal group

Collection Days

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Average Efficiency by Group

- Definition
  - C = Number of completed interviews on a given day and group
  - T = number of calls of a given day and group
  - Efficiency = C / T

Efficiency comparison between no-contact and regular groups

Regular efficiency
No-contact efficiency
57th day
Collection days

Efficiency comparison between the no-contact and refusal groups

Refusal efficiency
No-contact efficiency
57th day
Collection days

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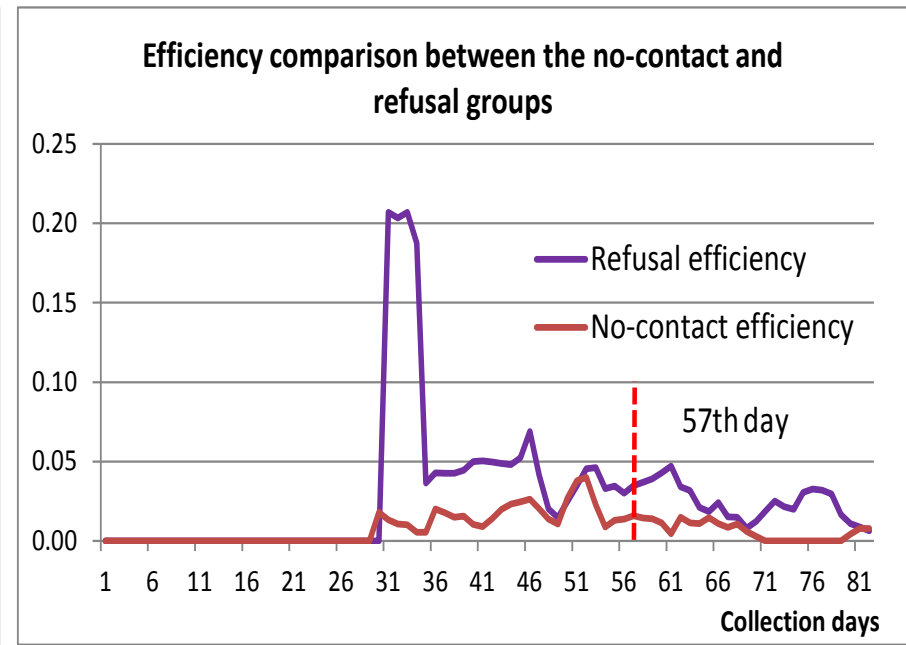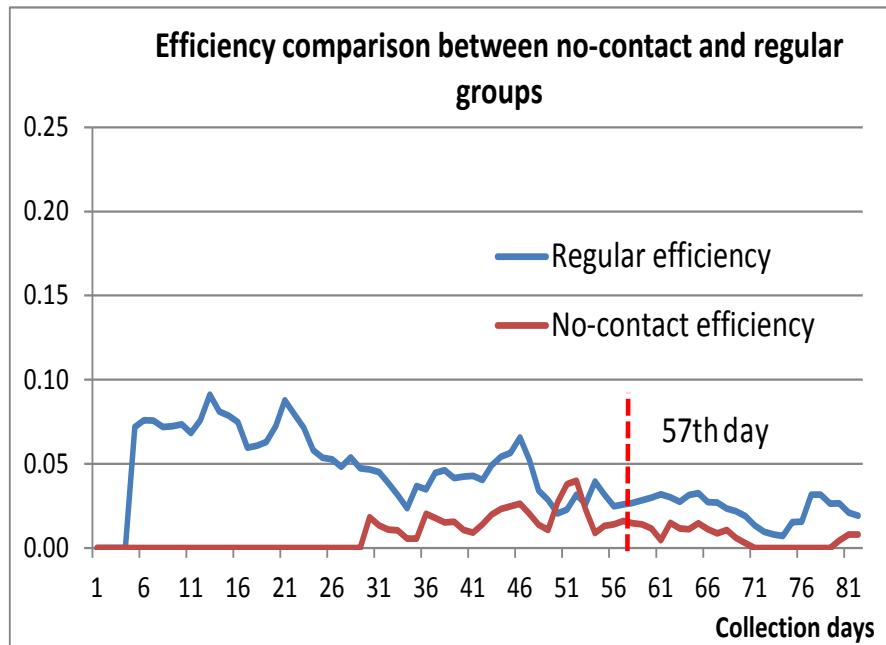
Guidelines on Workload Distribution

- To maximize global efficiency, work on each group should be proportional to its relative efficiency and size
  - Currently developing guidelines
- Example of monitoring tool

Blaise Group	Regular	Refusal	Senior interviewer	No-contact	High probability	Overall
Size of the group	261	206	258	233	57	1,015
Relative size of the group	26%	20%	25%	23%	6%	100%
Observed efficiency	2.6%	3.5%	3.0%	1.6%	7.1%	18%
Proposed workload	22.8%	24.3%	26.5%	12.7%	13.8%	100%
Observed workload	22.3%	24.6%	0.8%	45.0%	7.2%	100%

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Conclusion and Highlights

- RCD cannot be implemented without Active Management (AM)
  - But AM can be performed without RCD
- AM and RCD is two important factors that help to maintain (and even improve) response rate overtime
- Sample representativeness generally improved in many surveys
- High probability group had positive impact
  - Model is able to identify the units that are more likely to respond
  - Able to get responses faster
- More efficient distribution of calls (effort)
  - Especially with the Guidelines on Workload Distribution
  - Improve refusal conversion rates

For more information, please contact
Pour plus d'information, veuillez contacter

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English - my Translation

- Theory, it is when it's not working but we know why

- Practice, it is when it is working but, we don't know why

- When theory meets up with practice, it's not working and we don't know why

Bernard Werber