Frequentists United: A Safe Space for Embracing Bayes

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$$P(\theta|Y) \propto P(Y|\theta)P(\theta)$$

POSTERIOR **LIKELIHOOD** **PRIOR**

Prior Elicitation (live)

THE TASK	DETERMINE THE CHANCE OF STUDY SUCCESS AT AN INTERIM STAGE
Indication	A rare disease with the need for multiple interim analyses.
Initial idea	• We have some previous phase information available. • Using a Bayesian framework, calculate the Probability of Success that the study meets appropriately defined success criteria at final analysis.
Deadline	By the end of the week (~5 working days).
Support	Clinical insight

Raise your hand if you would be confident of taking on this task and completing it by the deadline

Assembling the Team

Experience matrix to capture the team's experience with Bayesian analyses

	A	B	C	D	E	F
1		Name 1	Name 2	Name 3	Name 4	Name 5
2	**Bayesian Clinical Trial Experience?**					
3	Phase I	Yes	Yes	No	Yes	No
4	Phase II	Yes	Yes	No	Yes	No
5	Phase III	No	Yes	No	No	No
6	Phase VI	No	No	Yes	Yes	No
7	RWE	No	No	No	No	No
8	For the sections below use the following key:					
9	**0 = Unfamiliar/No experience**					
10	**1 = Familiar but no on-trial experience**					
11	**2 = Some on trial-experience**					
12	**3 = Extensive on-trial experience**					
13	**Highlight any areas you are particularly keen to gain more experience**					

	A	B	C	D	E	F
14	**Bayesian Programming Experience**					
15	SAS PROC MCMC					
16	SAS Other PROCS					
17	SAS Data Step					
18	R					
19	Other (e.g. WinBUGS)					
20	**Bayesian Applications**					
21	Probability of Success					
22	CRM					
23	Extended CRM (e.g. TITE)					
24	Defining Informative Priors					
25	MAP Priors					
26	Bayesian Dynamic Borrowing					
27	Bayesian Meta-Analysis					
28	Forecasting/event-tracking					
29	Sample Sizing for a Bayesian Primary Endpoint					
30	**Bayesian Analysis Methods**					
31	Emax					
32	Logistic regression					
33	MMRM					
34	Fixed Effects Models					
35	Random Effects Models					
36	Hierarchical Models					
37	Survival Analysis					

Review Existing Training

Demand

- Regulatory guidance
- Industry usage
- Future-proofing

Current Supply

- Content review
- Colleague feedback
- Identify gaps in content compared to demand

Target Supply

- Comprehensive topic coverage
- Appropriate level
- Real examples / case studies

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Update / Develop New Training

1 Introduction

2 Priors

3 Posteriors

4 Case Study (Conjugate Priors)

5 MCMC (theory)

6 MCMC (application)

7 Decision Making

8 Dynamic Borrowing

Theory | Applied | Theory & applied

Create and Maintain Practical Tools

CHEAT SHEETS

- Specific analyses
- Programming cheat sheets e.g. PROC MCMC, PROC BGLIMM

SUMMARIES

- Intranet site
- Regulatory guidance
- Modified QC process guidance

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LITERATURE SCOUT

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Resourcing Pool

Resource manager uses experience matrix

↓

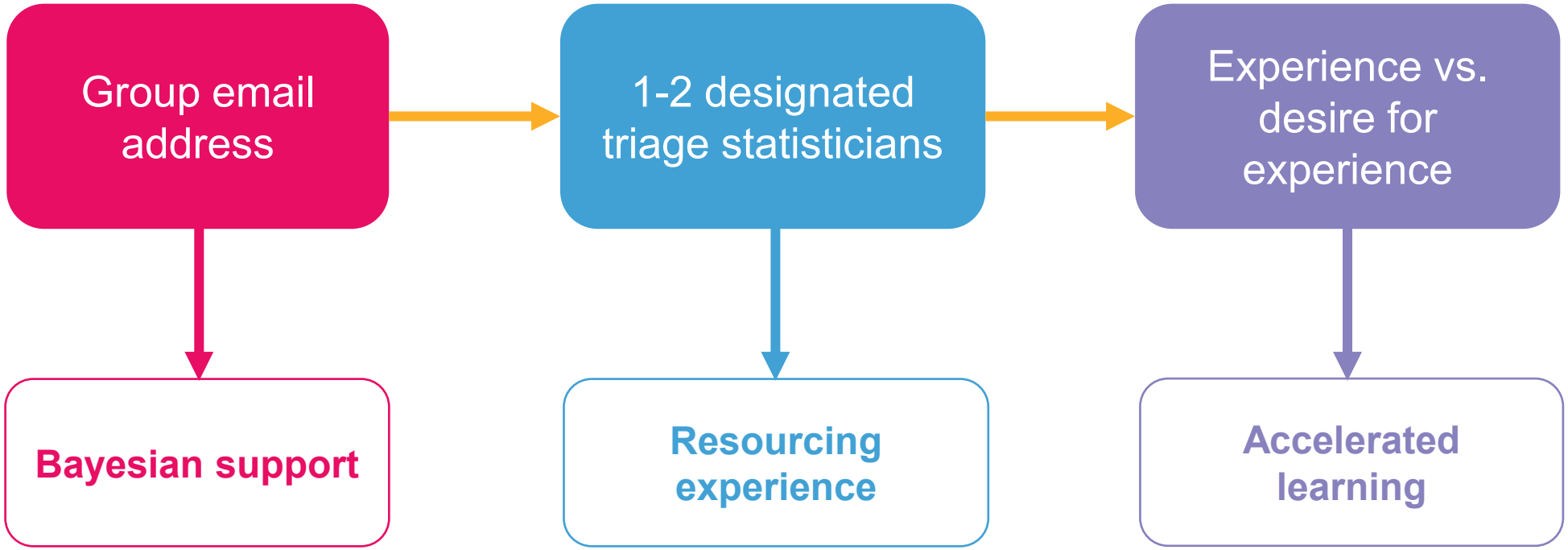
Identifies suitable resource

↓

Discusses potential work with the group member

"Highlight any areas you are particularly keen to gain more experience"

Ad-hoc Support



Peer-to-Peer Learning

Posterior (live)

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Support	Clinical insight, **a Bayesian support group**

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Thank you!

GET IN TOUCH

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Scan to connect on LinkedIn

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