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Can rapid approaches to qualitative analysis deliver timely, valid findings to clinical leaders? A mixed methods study comparing rapid and thematic analysis

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3 1 **Can rapid approaches to qualitative analysis deliver timely, valid findings to clinical leaders? A**
4 2 **mixed methods study comparing rapid and thematic analysis**
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2
3 51 **ABSTRACT**
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5 52 **Objectives:** This study compares rapid and traditional analyses of a UK health service evaluation
6
7 53 dataset, to explore differences in researcher time, and consistency of outputs.
8

9 54 **Design:** Mixed methods study, quantitatively and qualitatively comparing qualitative methods
10

11 55 **Setting:** Data from a home birth service evaluation study in a hospital in the English National Health
12
13 56 Service which took place between October-December 2014. Two research teams independently
14
15 57 analysed the data: one team used a Thematic Analysis approach using the Framework Method, and
16
17 58 the second used Rapid Analysis.
18

19 59 **Participants:** Home birth midwives (6), midwifery support workers (4), commissioners (4), managers
20
21 60 (6), and community midwives (12) and a patient representative (1) participated in the original study.
22
23

24 61 **Interventions:** None
25

26 62 **Primary outcome measures:** Time taken to complete analysis in person hours; analysis findings and
27
28 63 recommendations matched, partially matched, or not matched across the two teams.
29

30 64 **Results:** Rapid Analysis data management took less time than Thematic Analysis (43 v 116.5 hours).
31
32 65 Rapid Analysis took 100 hours, and Thematic Analysis 126.5 hours in total, with interpretation and
33
34 66 write up taking much longer in the Rapid Analysis (52 v 8 hours). Rapid Analysis findings overlapped
35
36 67 with 79% of Thematic Analysis findings, and Thematic Analysis overlapped with 63% of the Rapid
37
38 68 Analysis findings. Rapid Analysis recommendations overlapped with 55% of those from the Thematic
39
40 69 Analysis, and Thematic Analysis overlapped with 59% of the Rapid Analysis recommendations.
41

42 70 **Conclusions:** Rapid Analysis delivered a modest time saving. Excessive time to interpret data in Rapid
43
44 71 Analysis in this study may be due to differences between research teams. There was overlap in
45
46 72 outputs between approaches, more in findings than recommendations. Rapid Analysis may have the
47
48 73 potential to deliver valid, timely findings while taking less time. We recommend further comparisons
49
50 74 using additional data sets with more similar research teams.
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55 76 **Keywords**
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3 77 Qualitative Research

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5 78 Health Services Administration & Management

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7 79 Maternal Medicine

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10
11 81 **Strengths and limitations of this study**

- 12
13 82 • Our study explores a strategy to address the time-lag in reporting qualitative findings to
14
15 83 clinicians and policymakers, which slows translation of research into practice.
16
17 84 • This is the first comparison of qualitative analytical methods in applied health research
18
19 85 which compares both researcher time *and* outputs, with a complete study dataset.
20
21 86 • The work describes the process of comparing time and analytical outputs in detail, to inform
22
23 87 others planning further methodological comparisons.
24
25 88 • Due to the time lag in thematic analysis outputs, our study did not triangulate findings with
26
27 89 the original participants.
28
29 90 • The study uncovered important challenges in comparing analytical approaches between
30
31 91 research teams which can inform the design future work in this area.
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92 BACKGROUND

93 Applied health research frequently adopts mixed methods, often using qualitative approaches.[1]

94 Applications of qualitative methods include: early work to identify areas for focus; throughout a

95 study to provide continued user experience; following a trial or intervention implementation to

96 explain outcomes and/or identify stakeholder experiences.[2] Increasingly this type of research can

97 include a broader range of contributors, for example where members of the public, patients,

98 clinicians, and researchers are involved in analysing and interpreting data to ensure a multi-

99 disciplinary perspective, or pragmatically using several researchers to code data in the interests of

100 time.[3, 4]

101

102 Typically stakeholders want rapid results,[5] yet traditional qualitative approaches often

103 considerable time is required to manage and interpret data, and deliver findings.[6, 7] In a service

104 context, delays may render the findings out of date, reducing their applicability and relevance. There

105 are examples of apparently more rapid alternatives to traditional qualitative approaches.[7-11]

106 There are three broad areas where time can be saved; by reducing data collection time, for example

107 by relying on untranscribed audio recordings, notes, summaries and mind maps;[8-10] by minimising

108 the time spent managing data by summarising as opposed to formally coding;[9, 11] by limiting the

109 time spent on analysis by using a 'one sheet of paper' summary to explore a sample of a large pre-

110 coded dataset.[7] What remains unknown is whether rapid methods of analysis deliver equivalent

111 findings to traditional approaches, or how much time they save in practice.

112

113 There are a limited number of studies that have compared different qualitative analytical

114 techniques.[9, 12-14] In some of the empirical examples identified, methodologists have

115 predominantly compared methods of data collection (e.g. interviews versus internet forums[12]),

116 and focused on content analysis rather than interpretation. Of the three examples identified that

117 compare analytical approaches one used focus group data to compare thematic analysis of a partial

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3 118 dataset with mind-mapping of a full dataset.[9] While this paper provides minimal detail regarding
4
5 119 the method of comparison, it reported differences in time taken to analyse the data, and in the
6
7 120 number and presentation of codes. The second example compared software-assisted and constant
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9 121 comparative approaches to analysis describing differences in the frequency of codes and coding
10
11 122 levels.[13] The third example compared analysis of focus group data directly from audio recordings,
12
13 123 with thematic analysis of transcribed data, and found that themes generated were comparable.[14]

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16
17 125 The work we present here was conducted as part of the Collaboration for Leadership in Applied
18
19 126 Health Research and Care (CLAHRC) programme in the West Midlands of England. CLAHRC involves
20
21 127 local teams across Universities and National Health Service organisations working in partnership to
22
23 128 deliver research to improve services for patient benefit.[15] As part of a service evaluation study of a
24
25 129 new home birth service, we gathered interview, focus group and documentary data. We then
26
27 130 compared the speed and outputs of rapid and traditional techniques applied to the same dataset.
28
29 131 For the Rapid Analysis (RA) we used the approach developed by Hamilton at UCLA.[11] We
30
31 132 compared this with Thematic Analysis (TA)[16] and the Framework Method which was selected due
32
33 133 to the team's existing familiarity with this approach, and the fact that it is increasingly applied in
34
35 134 multidisciplinary health services research.[6, 17]

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37 135

38 39 40 136 **METHOD**

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42 137 This study compares rapid and traditional analyses of a UK health service evaluation dataset, to
43
44 138 explore differences in researcher time, and consistency of outputs. This was a mixed methods study,
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46 139 quantitatively and qualitatively comparing the outputs of qualitative methods.

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50 51 141 **SETTING**

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53 142 The data came from a home birth service evaluation study in a hospital in the English National
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55 143 Health Service which took place between October-December 2014.

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5 145 **Characteristics of participants**6
7 146 Home birth midwives (6), midwifery support workers (4), commissioners (4), managers (6), and
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9 147 community midwives (12) and a patient representative (1) participated in the original study.10
11 14812
13 149 **Description of processes, interventions and comparisons**14
15 150 In the original evaluation, an evaluability assessment approach was adopted,[18] and its specific
16
17 151 objectives were to: establish the original programme design and how the service differed from this
18
19 152 design and why; identify facilitators or barriers to implementation; establish what service data are
20
21 153 available, and how it is being /could be gathered; identify how staff would develop/improve the
22
23 154 service.24
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26 15527
28 156 Twenty three provider and commissioning staff and one patient representative were purposively
29
30 157 sampled, with recruitment by direct email or telephone invite, with three unable to take part due to
31
32 158 availability. Semi-structured interviews informed by the study objectives were conducted by
33
34 159 [researcher 1] at participants' workplaces. A focus group of 12 staff was facilitated by [researcher 1]
35
36 160 and [researcher 2], also structured according to the study objectives. A convenience sampling
37
38 161 approach was taken for the focus group, with midwives available at the allotted time invited to take
39
40 162 part at their workplace. Participants were not known to researchers prior to the study. Focus groups
41
42 163 lasted approximately one hour, were digitally recorded and transcribed for analysis, with minimal
43
44 164 field notes taken. Participants did not review transcripts. Eight key service documents were also
45
46 165 utilised in the analysis (business case, service guidelines, commissioning policy). The primary service
47
48 166 review and secondary analysis were reviewed by the University of Birmingham Ethics Committee, ref
49
50 167 ERN_15-0127S. Local approval was obtained from the hospital Research and Development Team.
51
52 168 The data was analysed independently using firstly RA and secondly TA as described in detail below.
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54 169 All researchers work in applied health research in the same department of a UK University.
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3 170 Researcher 1 is a public health physician, Researcher 2 is a registered nurse, Researcher 3 is a
4
5 171 registered midwife. Researchers 4 and 5 are health service researchers, Researcher 6 is a medical
6
7 172 sociologist. A summary and comparison of the process used for the two analyses is shown in Table 1.
8

9 173

10
11 174 The primary Rapid Analysis (RA) (*[researcher 1], [researcher 2], [researcher 3]*)

12
13 175 RA was conducted between November and December 2014. The rapid qualitative analysis approach
14
15 176 used[11] was designed to deliver timely findings with methodological rigour. The approach includes
16
17 177 guidance on data collection and report writing and was developed using teams of less experienced
18
19 178 researchers. Here we have used only the analytical methodology and researchers experienced in
20
21 179 qualitative methods. Hamilton relates how the reduced timeframe of rapid methods means that
22
23 180 they tend to be more deductive and explanatory than inductive and exploratory.[11] However, the
24
25 181 work presented here utilised both inductive and deductive approaches. The process is presented in
26
27 182 detail in Table 1. Researchers spent approximately one hour with each transcript or document,
28
29 183 noting key issues in a one-sheet, structured 'summary template' (Supplementary File 1). Summarised
30
31 184 data was explored with respect to the research objectives, to produce a report summarising findings
32
33 185 and recommendations.
34

35
36 186

37
38 187 Secondary Thematic Analysis using the Framework Method (TA) (*[researcher 4], [researcher 5],*
39
40 188 *[researcher 6]*)

41
42
43 189 The secondary analysis was conducted by [researcher 4] between June and September 2015, after
44
45 190 the original RA was complete, with oversight and support from [researchers 5 and 6]; all three are
46
47 191 experienced qualitative applied health researchers from outside of the original team. Typically, the
48
49 192 purpose of secondary analysis is to explore new research questions,[19]but in this case secondary
50
51 193 analysis was performed using a different method to meet the same objectives as the primary
52
53 194 analysis, to compare the outputs of the two methods. The original team (*[researchers 1, 2 and 3]*)
54
55 195 provided brief contextual details about the field, the organisations and participants involved, and the
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196 background to the project. No further discussion occurred, to avoid revealing RA findings to the TA
 197 team. The TA was informed by the original research objectives, using an inductive approach, and
 198 following the steps set out in the Framework Method:[6, 17] familiarisation, coding, developing a
 199 framework, applying the framework, charting data into the framework, interpreting data, and
 200 writing up. Table 1 summarises the process.

201

202 **Table 1: Description of the Rapid Analysis and Thematic Analysis**

	Rapid Analysis	Thematic Analysis
The researchers	Clinical background Embedded in the field First time using RA Shared office, opportunity to interact Evenly shared workload Main focus of work Conducted over short period Focused on producing and 'crafting' outputs for known stakeholders	Not clinical No prior exposure to field Experienced in TA – no need to 'learn' No informal interaction/reflection [Researcher 4] conducted most of the analysis Conducted alongside other core work Project delivered over a longer period Less focused on the needs and expectations of stakeholders
Data collection	Interviews, focus groups conducted, documents gathered from participants by [researcher 1], [researcher 2] facilitating focus group.	Provided with pre-gathered dataset.
Transcription	Audio recordings transcribed by third party. Transcripts checked for accuracy by researcher. Participant name retained in transcript	Pseudoanonymised transcripts and documents provided.
Timing	During and following data collection process.	Analysis conducted post-data collection.
Ordering	Interviews, then focus groups, then documents. Strategic participant data analysed first.	Documents, then interviews with strategic participants first, finally the focus groups
Early analysis	[researchers 1 and 2] dual analysed one interview transcript, inserting them into a 'summary template', organised according to the research objectives (see Supplementary File 1). They compared template content. The process and the template structure were reviewed and amended (some subheadings applied). A second transcript was subsequently dual analysed in the same way. The 'one hour per transcript' rule was not applied here,	A sample of transcripts reflecting a range of job title and seniority were analysed independently by [researchers 4 and 5] and the themes that emerged discussed and finalised. These themes were arranged into analytical hierarchies and formed the basis for the codification of the remaining data.

	spending 1.5-2 hours on each.	
Main analysis	Remaining data items allocated equally to [researchers 1 and 2], following the same process, limiting time to one hour maximum per data item (less for some less complex documents). Researcher entered information directly into a matrix, structured as the template, using individual templates duplicated work.	[Researchers 4 and 5] independently analysed the same three transcripts and the resulting themes and sub-themes were agreed and formed the analytical hierarchy for the remaining data.
Researcher interaction	[Researchers 1, 2 and 3] reflected and discussed the data and interpretation on a regular, iterative basis	[Researchers 4 and 5] had several telephone and one face to face discussion.
Interpretation	[Researchers 1 and 2] reviewed content in one another's matrices, and combined them. Data were allocated equally to [researchers 1 and 2] for interpretation and write up, organised according to the template, e.g. facilitators to implementation. The 'barriers' section was more complex, and this was subdivided it into themes which were allocated to [researchers 1 or 2], e.g. training, promotion and recruitment. A summary of findings and a set of recommendations were produced for each. Summaries were reorganised thematically.	[Researcher 1] undertook interpretation and write-up of the findings according to the thematic headings. For each theme and sub-theme an explanatory sentence was produced and an exemplar quote or quotes was selected. These themes and sub-themes were used to create a list of findings specific to each overarching theme.
Final report writing	Summaries of findings and recommendations were combined and checked by [Researchers 1, 2 and 3] to eliminate duplication and reach consensus regarding interpretation, revisiting the primary data where necessary.	These findings were used to inform a final report, populating the template provided by [researcher 1]. The report included a logic model and focused on a series of recommendations for the mitigation of existing issues where the service was failing.

203

204 The comparison

205 The comparative analysis was conducted between October 2015 and May 2016, comparing three

206 aspects of the analyses: time taken, findings, and recommendations. Each team recorded the time

207 taken to perform every activity. Summary statistics were produced using data from the resulting

208 timesheets. Findings we defined as individual issues identified and included in a report.

209 Recommendations were defined as suggested actions to improve or maintain the service. Each team

210 then independently compared RA and TA findings, allocating a 'match', 'partial match' or 'mismatch'

211 category. Both teams then met to discuss and reach consensus. Any mismatches were discussed,
212 and perceived reasons agreed and recorded and summary statistics produced.

213

214 RESULTS

215

216 The research teams

217 Table 2 presents the characteristics of the two research teams.

218

219 **Table 2: Characteristics of the two research teams**

Rapid Analysis Researchers	Thematic Analysis Researchers
Clinical	Lead researcher not clinical
Embedded in field	No prior exposure to the field
BT collected the data	Did not collect data
Using Rapid Analysis for first time – developing new practice	Experienced in Thematic Analysis, using existing skills
Shared office	No shared space
Equal workload within team	IL conducted majority of analysis
Analysis main task at work	Analysis conducted alongside other commitments
Focused on producing outputs for known stakeholders	Much less focused on the stakeholder team

220

221 Comparison of time

222 Table 3 illustrates the time taken at each stage of the process. The four hours of background
223 discussions to provide IL with context were not counted in the total.

224

225 The RA data review and management took around a third of the time of the TA (43 hours and 116.5
226 respectively). The reverse was true of the report writing, RA was more than six times longer at 52
227 hours.

228

229 Comparison of findings

1
2
3 230 The comparison of findings is presented in Table 4. TA elicited marginally more findings than RA (153
4
5 231 v 131). There were 107 matches (example provided below). There are differences in reporting style
6
7 232 and level of detail in the findings (explored further in the discussion).
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9 233

10
11 234 *“There are issues around communication with ambulances/paramedics.” TA finding*
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13 235

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15 236 *“Some paramedics are unaware that the HBS exists and there have been delays of up to 30 minutes*
16
17 237 *between the paramedics being informed of a BBA and this being cascaded down to midwives.” RA*

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19 238

finding

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24 240 Findings from one method frequently matched two or more from the other: 71 RA and 78 TA
25
26 241 findings delivered 107 matches. There were 43 partial matches, where findings identified similar, but
27
28 242 not identical issues (28 RA, 37 TA, some matching more than once), for example:
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31
32 244 *“There was a general consensus that useful meetings with a range of stakeholders were hard to*
33
34 245 *arrange for a number of reasons including workload and shift pattern.” TA finding*
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37
38 247 *“While support is strong in-principle, there is no formal process for strategic-level consultation and*
39
40 248 *decision-making about the HBT within the provider Trust (outside of the Project Board). In addition,*
41
42 249 *busy workloads make collaborative working challenging.” RA finding*
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47 251 Eighty findings could not be matched: 46 or 37% of all RA findings, and 34 (21%) of the TA findings.
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49 252 Exploration (see Table 5) revealed that the most common reason for mismatches was that the other
50
51 253 team simply did not identify it in the data (confirmed by returning to the original data). The TA team
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53 254 did not find 11%, and the RA team did not find 12% of the opposite team’s findings. The next most
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255 common reason was that findings were specific or detailed, rather than key issues with broad
 256 relevance. The RA team also reported positive findings which the TA team did not deem useful.

257

258 There were a small number of findings which emerged from interpretation of 'what was not in the
 259 data'. For example, the RA team reported that staff may not gain necessary qualifications for
 260 deployment, which was a risk to service resilience, connecting data on staff training with other data
 261 concerning service staffing requirements, rather than a direct report from research participants. The
 262 TA team did not identify this finding.. The RA team's contextual knowledge meant that they
 263 perceived some TA findings to be incorrect. For example, a TA finding suggesting that regular
 264 meetings were helpful was rejected, as the RA team had been informed (outside of the formal data
 265 collection) that the meetings were not functioning as intended.

266

267 Finally, the RA team unconsciously suppressed two findings that were politically challenging. For
 268 example, confusion regarding role boundaries among participants was a TA finding that RA
 269 researchers reflected they had suppressed.

270

271 Some findings appeared to have no match, but cross checking revealed that the finding aligned with
 272 the other team's recommendations (9 RA and 3 TA findings). For example, the RA found that staff
 273 had requested more emergency training, and the TA recommendations included provision of more
 274 emergency training.

275

276 **Table 3: Time taken to complete analysis using rapid analysis and thematic analysis**

	Rapid analysis team			Thematic analysis team				
	[R1]	[R2]	Total	[R4]	[R5]	Total		
Primary data review and management	Review 2 transcripts and develop summary template	6	5	11	Review/code initial transcripts	11	10	20.5
	Refine template	2	2	4	Developing framework	3	1	4

	Complete summary template for remaining transcripts	13	11	24	Review/code remaining transcripts	82	82
	Reviewing documents	2	2	4	Reviewing documents	4	4
	Reviewing matrix	2	3	5	Final themes	8	8
	Total	25	23	48	Total	108	11 118.5
Interpretation and report writing	Writing up findings	16	16	32	Writing up findings	4	4
	Writing recommendations	8	12	20	Writing recommendations	4	4
	Total	24	28	52	Total	8	0 8
TOTAL			100				126.5

277

278

279 **Table 4: Quantitative comparison of findings and recommendations elicited using rapid analysis**280 **and thematic analysis**

		Rapid analysis		Thematic analysis		Total
Findings	Matched	71	54%	78	51%	107
	Partially matched	28	21%	37	24%	43
	No match found	48	37%	32	21%	80
	Appears in other team's recommendations (not findings)	9	7%	3	2%	12
	Total*	131		153		N/A
Recommendations	Match	18	28%	32	34%	32
	Partial match	20	31%	26	28%	26
	No match	26	41%	42	45%	68
	Total*	64		93		N/A

281 *This does not reflect column total as findings/recommendations from one team frequently

282 matched (fully or partially) two or more from the other team

283

284 **Comparison of recommendations**

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3 285 Quantitative comparison of recommendations is presented in Table 4. The RA generated 64
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5 286 recommendations, a third less than the TA. 18 of the RA recommendations matched to 32 of those
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7 287 from the TA, for example:

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11 289 *“Require future recruits to have achieved the minimum numeracy/literacy standard.”*

12
13 290 *TA recommendation*

14
15 291

16
17 292 *“Be clear on the necessary baseline skills in numeracy and literacy that are required.”*

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19 293 *RA recommendation*

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21 294

22
23 295 There were partial matches between 20 RA and 26 TA recommendations, for example.

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25 296

26
27 297 *“Ensure robust lines of communication are in place between Home Birth Service and community
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29
30
31 298 midwives.” TA recommendation*

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33 299

34
35 300 *“Routinely feed back to referring professionals to confirm booking with Home Birth Service, or
36
37 301 transfer back to community midwives.” RA recommendation*

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39 302

40
41 303 A further 26 (41%) of the RA recommendations, and 42 (43%) of the TA recommendations had no
42
43 304 match. Reasons are presented with examples in Table5.

44
45 305

46
47 306 The most common reason was that the other team did not identify a particular recommendation, RA
48
49 307 did not find 18 (35%) and TA did not find 3 (12%). Four of these TA recommendations related to
50
51 308 training of midwives, three were about organisation of meetings, and the remainder had no
52
53 309 common theme. The researchers determined that the midwife training recommendations were
54
55 310 important, and had been an analytical blind spot for the RA team. Other mismatched

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3 311 recommendations were collectively determined to be of low importance by the researchers, except
4
5 312 for the TA team's recommendation about projected milestones for the service.
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8
9 314 The RA team made 19 recommendations based on 'what wasn't in the data', interpreting beyond
10
11 315 the reported facts. The TA team made 15 recommendations which the RA team did not support, as
12
13 316 their contextual knowledge deemed them unworkable or inappropriate. Nine recommendations that
14
15 317 were not found were from the TA team who made a detailed list of items for a future service dataset
16
17 318 while the RA team provided less specific recommendations regarding a future data set. Finally, four
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19 319 recommendations were determined to be made due to contextual knowledge of the RA researchers.
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Table 5: suggested reason for mismatched findings and recommendations, with examples

	Suggested reason for other team not eliciting finding/recommendation	Rapid analysis	Thematic analysis	Total	Examples
Findings	Straightforward miss/error	16	17	33	"There has been no Audit against NICE guidelines for contact (number of visits)." - TA
	Specific/detailed	10	11	21	"Aromatherapy oils are expensive." TA
	Positive finding not reported	15	0	15	"Initial engagement visits to community teams by HBT members facilitated implementation." RA
	Finding emerged from 'what is not in the data' - higher level interpretation	5	1	6	"It is not known whether current MSW recruits will be successful in the 45 credit [training] module, and how Service needs will be met if they are not." RA
	The embedded team's knowledge of the context meant they did not agree	0	3	3	Examples suppressed as sensitive
	Suppressed as politically challenging	0	2	2	Examples suppressed as sensitive
	Total	46	34	80	
Recommendations	Straightforward miss/error	3	18	21	"Ensure that meetings are attended by as many of full and part-time workers as possible." TA
	Recommendation emerged from 'what is not in the data' - higher level interpretation	19	0	19	"Consider whether services which fall outside of 'standard' maternity care should be routinely offered, e.g. complementary therapies, hypnobirthing, pool provision, high frequency or duration of contact with women." RA
	Embedded RA team's contextual knowledge meant that they did not agree with recommendation	0	15	15	"Co-locate the HBS with other maternity services." TA – the RA team knew that this was not possible at the participating hospital trust.
	Specific/detailed recommendations for a service dataset or audit	0	9	9	"Frequency of texts between mother and midwives could be retrospectively collated to demonstrate improved accessibility." TA
	Contextual knowledge was used to develop recommendation	4	0	4	"Ensure that the HBT midwives are sufficiently familiar with Birth Centre/Delivery Suite facilities and protocols." RA – the TA team assumed this would be the case already
	Total	26	42	68	

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3 320 **DISCUSSION**

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7 322 **Principal findings**

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9 323 This study compared rapid and thematic analysis methods applied to the same dataset, to explore
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11 324 whether RA provides timely, accurate outputs for services. RA data management took around a third
12
13 325 of the time of TA (43 v 116.5 hours). RA took 100 hours, and TA 126.5 hours in total, but RA
14
15 326 interpretation and write up took more than 6 times longer than TA (52 v 8 hours). RA findings
16
17 327 accounted for 79% of those from the TA, and TA accounted 63% of the RA findings. RA
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19 328 recommendations accounted for 55% of those from the TA, and TA accounted for 59% of the RA
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21 329 recommendations.
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26 331 **Strengths and limitations of the study**

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30 333 Strengths and limitations in the RA and TA processes

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32 334 The qualitative analysis processes followed by each team have been described in detail to enhance
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34 335 reproducibility and reliability. The characteristics of the researchers are acknowledged and explored.
35
36 336 Researchers were similar in that they were all experienced postdoctoral health services researchers,
37
38 337 working in the same Institute for some time, arguably with similar culture. There were differences
39
40 338 between the researchers (see Table 5). These factors may have conferred variation in analysis and
41
42 339 interpretation.
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47 341 The RA team had greater contextual knowledge resulting from previous clinical exposure as health
48
49 342 professionals, and working closely with the service. This appeared to impart an underlying level of
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51 343 understanding that was critical to the findings and particularly recommendations. RA in a health
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53 344 service setting without this background knowledge may be inappropriate. Around a third of RA
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55 345 findings were not accounted for by the TA:RA generated a large number of additional findings,
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3 346 suggesting that closeness to the field and data may have conferred an advantage. It has been
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5 347 recommended previously that contextual information should be provided to secondary analysts to
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7 348 mitigate the lack of exposure to the field.[19] The intended comparison of methods and need to
8
9 349 avoid conferring between teams meant that the TA only received brief information, rather than the
10
11 350 rich, iterative contextual information that may be more typically provided within secondary analysis.
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14
15 352 The RA was conducted for a specific group of stakeholders, and the interpretation, and crafting of
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17 353 findings and recommendations was done with these individuals in mind. Though not conscious of
18
19 354 this at the time of analysis, on reflection we believe that this focus on a specific audience, in addition
20
21 355 to [researchers 1 and 2]'s relationship and sense of reciprocity with the service, may have resulted in
22
23 356 a more lengthy approach. This contrasts with the TA which was a 'desktop exercise', with no
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25 357 commitment to the research participants, which we feel made the process more straightforward,
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27 358 with less need for careful presentation of data.
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32 360 A second factor in explaining the lengthy RA is that it is the first time that [researchers 1 and 2] have
33
34 361 used RA. Adapting to a new method can take time and discipline is required not to refer to more
35
36 362 familiar, lengthier practices. However the number and detail in the findings and recommendations in
37
38 363 the RA (131, 62 respectively) was similar to those in the TA (153, 93). For qualitative researchers
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40 364 trained in TA it may be difficult to wholly adopt the brevity required of RA.
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45 366 The TA was predominantly conducted by one researcher [researcher 4], providing fewer
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47 367 opportunities for reflection in the TA development. The RA team also had the opportunity for
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49 368 ongoing regular reflection due to shared office space, which may have enhanced but also
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51 369 lengthened the process.
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3 371 Our approach to this work was pragmatic, based on available researcher capacity, though in future
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5 372 comparisons parity across the RA and TA researchers could be achieved by using two equal-sized
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7 373 teams, with similar characteristics, and equal division of labour. Involving some or all of both teams
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9 374 in data collection would provide equality in exposure and embeddedness.

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13 376 Strengths and limitations in the comparison process

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15 377 This paper has provided an opportunity to explore and reflect on approaches to comparing
16
17 378 qualitative methods. The limited evidence base necessitated the development of the comparison
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19 379 methodology. The study team regularly met to review the process, emerging findings and
20
21 380 interpretation to enhance the rigour of the exercise.

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26 382 The complexity of the process only became clear once the researchers began to compare the data.
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28 383 Differences in style and the degree of 'polishing' of the content and language, and the resulting
29
30 384 impact on time taken, was not apparent until analyses were complete and outputs shared. In
31
32 385 addition, devising an approach to categorising and reporting mismatched findings and
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34 386 recommendations took time and was not as intuitive.

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39 388 A further limitation is the fact that the comparison was conducted by the researchers themselves,
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41 389 due to pragmatic resource constraints. While we acknowledged this and aimed to maintain
42
43 390 objectivity, there is clearly a risk of bias in interpretation, and future projects should consider
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45 391 involving an independent, blinded third party to conduct the comparison.

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49 393 An unexpected outcome of this study is that it has encouraged us to reflect deeply on our own
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51 394 research practice, resulting in a better understanding of our methods and role. Future comparisons
52
53 395 may benefit from independent exploration of the researchers' individual processes alongside the
54
55 396 'outcomes' of time, findings and recommendations.

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5 398 The initial intention was to involve participants in reviewing the importance of mismatched findings
6
7 399 and recommendations. This was not practicable due to the unexpected length of time taken to
8
9 400 complete the comparison, and the need for service stakeholders to determine whether mismatches
10
11 401 would have been helpful many months in the past.

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15 403 It is important to note that all researchers in this study were experienced in qualitative health
16
17 404 research using TA, and as such this study does not explore RA and TA for novice researchers.

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21 406 Possible explanations for the differences in time taken to conduct analysis

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23 407 The time taken in the RA was much shorter at the data review and management stage, equating to
24
25 408 around two weeks less whole time equivalent (WTE) researcher time. This suggests that managing
26
27 409 data in this way within a short timeframe is possible. However, the interpretation and reporting
28
29 410 phase was much longer with RA (6.5 days versus one day in TA). A number of factors may have
30
31 411 contributed. Time saved in coding and data management may result in more time being required at
32
33 412 the interpretation stage in RA. This needs further exploration, RA only took three WTE researcher
34
35 413 days less than TA, which may be of little benefit to academic or health service stakeholders. There
36
37 414 are further possible explanations: the researchers' relationship with the service, the purpose of the
38
39 415 research, and the fact that the RA team were learning a new skill. This is explored earlier in the
40
41 416 strengths and limitations section.

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45 418 Possible explanations for the difference in findings

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47 419 The RA findings accounted for 78 of the 153, or 79% of the findings delivered by the TA. This
48
49 420 considerable overlap indicates that TA, which codes all data, did not produce many additional
50
51 421 findings. This is consistent with others' findings comparing themes generated from different
52
53 422 analytical approaches.

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424 The most common reason for mismatches in findings was that the researchers had not identified the
425 issue in error, with a 'did-not-find rate' of around one in ten for both methods. This may indicate
426 that qualitative researchers will never elicit perfectly overlapping findings, regardless of method.

427

428 A number of mismatches were accounted for by unconscious suppression of challenging findings,
429 higher level interpretation, and differences in contextual knowledge leading to the rejection of
430 findings. These explanations were more prevalent in the RA team, suggesting that embeddedness
431 influences these processes (discussed earlier as a limitation). Between a quarter (RA) and a third (TA)
432 of the mismatched findings were somewhat detailed, highlighting differences in natural reporting
433 style, interpretation and prioritisation of what was meaningful. Again, this may arise between
434 different researchers, regardless of method. Mays and Pope relate how observations are "*limited by*
435 *definition to the perceptions and introspection of the investigator*,"[20] and variations in perception
436 and introspection are inevitable between different individuals. There are different views regarding
437 whether qualitative findings should be reproducible,[21] but we take the stance that subjectivity and
438 individual variation make this impossible. This has been a useful exercise in reflexivity,
439 demonstrating how experiences and unconscious processes impact on findings.

440

441 The TA team did not report positive findings, accounting for a further portion of the mismatch: this
442 was attributed to differences in interpretation of the project scope, rather than analytical processes
443 delivering different results. Also the TA team were aware that they would not be presenting findings
444 to providers, meaning that they felt more able to be critical and candid.

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446 Possible explanations for the difference in recommendations

447 The recommendations also demonstrated overlap, with around three out of five being accounted for
448 by both teams. However, RA did not pick up a third of the TA recommendations. We perceive that

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3 449 the majority reflected relevant but non-essential detail, and the 'make or break' recommendations
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5 450 that were key to the sustainability of the service were not missed, though we acknowledge that this
6
7 451 is a subjective judgement. Arguably the most important recommendation missed related to training
8
9 452 midwives in administrative and management skills. This detail is consistent with the TA process,
10
11 453 where the data was explored in more depth, leading to more precise recommendations. However,
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13 454 this pattern was not observed in the findings. A possible explanation is that the RA team, with the
14
15 455 eventual audience in mind, were more conservative in the number and detail of recommendations.
16
17 456 Over half of RA recommendations that the TA did not find were accounted for by higher level
18
19 457 interpretation and contextual knowledge, and just under half of the TA mismatched
20
21 458 recommendations were deemed inappropriate by the RA team due to contextual knowledge,
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23 459 suggesting that embeddedness in the field confers advantages, separate from the method used.
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462 **CONCLUSION**

32 463 This paper provides important insights into the time taken and outputs from rapid and thematic
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34 464 qualitative analysis approaches. We found that the RA was appropriate and delivered valid findings
35
36 465 and recommendations, with reassuring but not complete overlap, with mismatches appearing to
37
38 466 relate to minor or detailed issues. RA enabled considerable time savings in management of data, but
39
40 467 may not be as rapid as assumed. This requires further testing, addressing the limitations identified,
41
42 468 to establish how much time experienced RA researchers can save, and whether this is of practical
43
44 469 benefit to services. Further work is also required to determine whether differences in outputs are
45
46 470 due to the analytical method, or other influences, and whether any differences are relevant and of
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48 471 importance to stakeholders. The characteristics, conduct, and role of the researcher/s is key, and our
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50 472 impression is that RA requires the researchers to be embedded in the field.
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3 474 We do not advocate RA for granular exploration of complex questions, for example individuals'
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5 475 experience of phenomena. It could be used to rapidly identify issues for further, in depth qualitative
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7 476 exploration. RA represents one of many tools of the qualitative researcher's trade, with particular
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9 477 potential for use in applied health research, when timely reporting is needed. We advocate further
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11 478 work to identify the practical application and use of different rapid approaches in practice.
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484

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489 submitted work in the previous three years; no other relationships or activities that could appear to
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491

492 AUTHORS' CONTRIBUTIONS

493 The original idea for the project was conceived by SK. The study was designed by BT with intellectual
494 input from all authors. Primary data collection was conducted by BT. Rapid analysis of data was
495 conducted by BT and CH, with input from SK. Thematic analysis of data was conducted by IL and LB,
496 with input from SG. Comparison of time data was conducted by BT, and checked by CH and IL. Initial
497 comparison of findings and recommendations was conducted by BT, CH, IL and SK, and all authors
498 reviewed outputs from the comparison. The preliminary draft of the paper was written by BT. This
499 was critically reviewed by CH, IL, SG and SK for important intellectual content and subsequent
500 revisions to the paper were undertaken by BT as a result. Final approval of the version of the paper
501 to be published was granted by BT, CH, IL, SG and SK, who all also agreed to be accountable for all
502 aspects of the work in ensuring that questions relating to the accuracy or integrity of any part of the
503 work are appropriately investigated and resolved.

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2
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8

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22
23 515 interpretation.
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28 517 **DATA SHARING**

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30 518 Data is securely stored at the University of Birmingham in line with our information governance and
31
32 519 data protection policies. Due to the confidential nature of our qualitative data, which may identify
33
34 520 individuals even following anonymization, we have not made the data publicly available, in line with
35
36 521 our research permissions and consent.
37

522 **LIST OF ABBREVIATIONS**

523

524 RA – Rapid Analysis

525 TA – Thematic Analysis

526 CLAHRC – Collaborations for Leadership in Applied Health Research and Care

527 MSW – Midwifery Support Worker

528

529

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Summary Template

Home Birth Service Exploratory Review Summary Template	
PREPARED BY:	
DATE:	
DATA TYPE (document, interview transcript, focus group transcript):	
FOR INTERVIEWS AND FOCUS GROUPS:	
<i>PARTICIPANT IDENTIFIER/S</i>	
<i>PARTICIPANT ROLE</i>	
<i>PARTICIPANT ROLE IN THE HBS</i>	
FOR DOCUMENTS:	
TITLE	
DATE OF PRODUCTION	
AUTHOR	
RATIONALE FOR IMPLEMENTING HBS (POLICY, EVIDENCE, OTHER)	
What was the problem, what was going wrong?	
What was the vision (envisaged outputs, outcomes, impact)	
TRAINING:	
PROGRAMME THEORY/LOGIC MODEL:	
<i>INPUTS (resources, people)</i>	
<i>ACTIVITIES (what workers do, e.g. promotional work, clinical care)</i>	
<i>OUTPUTS (what activities deliver, e.g. women informed about the HBS, women receive intrapartum care at home) and OUTCOMES (results of the outputs, e.g. women book with the HBS, women give birth at home)</i>	
<i>IMPACT/GOAL (overall aims of programme, e.g. home birth booking rate increases, home birth rate increases)</i>	
FACILITATORS of IMPLEMENTATION	
Planning/process	
People	
Culture	
Money	
Organisation/bureaucracy	
Evidence/policy	
Other	
BARRIERS TO IMPLEMENTATION AND SOLUTIONS	
Planning/process	
People	
Culture	
Money	
Organisation/bureaucracy	
Evidence/policy	
Other	
ROUTINELY GATHERED DATA (HOW,WHERE, WHEN, WHO COLLECTED, WHERE DATA HELD)	
KEY DOCUMENTS WE SHOULD INCLUDE (e.g. service specification)	
OTHER IMPORTANT OBSERVATIONS	
IMPORTANT QUOTATIONS	
REFLECTIONS ON THE DATA COLLECTION EPISODE	

BMJ Open

Can rapid approaches to qualitative analysis deliver timely, valid findings to clinical leaders? A mixed methods study comparing rapid and thematic analysis

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Manuscripts

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2
3 1 **Can rapid approaches to qualitative analysis deliver timely, valid findings to clinical leaders? A**
4 2 **mixed methods study comparing rapid and thematic analysis**
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8 6

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3 51 **ABSTRACT**
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5 52 **Objectives:** This study compares rapid and traditional analyses of a UK health service evaluation
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7 53 dataset, to explore differences in researcher time, and consistency of outputs.
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9 54 **Design:** Mixed methods study, quantitatively and qualitatively comparing qualitative methods
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11 55 **Setting:** Data from a home birth service evaluation study in a hospital in the English National Health
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13 56 Service which took place between October-December 2014. Two research teams independently
14
15 57 analysed focus group and interview transcript data: one team used a Thematic Analysis approach
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17 58 using the Framework Method, and the second used Rapid Analysis.
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19 59 **Participants:** Home birth midwives (6), midwifery support workers (4), commissioners (4), managers
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21 60 (6), and community midwives (12) and a patient representative (1) participated in the original study.
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24 61 **Interventions:** None
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26 62 **Primary outcome measures:** Time taken to complete analysis in person hours; analysis findings and
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28 63 recommendations matched, partially matched, or not matched across the two teams.
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30 64 **Results:** Rapid Analysis data management took less time than Thematic Analysis (43 v 116.5 hours).
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32 65 Rapid Analysis took 100 hours, and Thematic Analysis 126.5 hours in total, with interpretation and
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34 66 write up taking much longer in the Rapid Analysis (52 v 8 hours). Rapid Analysis findings overlapped
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36 67 with 79% of Thematic Analysis findings, and Thematic Analysis overlapped with 63% of the Rapid
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38 68 Analysis findings. Rapid Analysis recommendations overlapped with 55% of those from the Thematic
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40 69 Analysis, and Thematic Analysis overlapped with 59% of the Rapid Analysis recommendations.
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42 70 **Conclusions:** Rapid Analysis delivered a modest time saving. Excessive time to interpret data in Rapid
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44 71 Analysis in this study may be due to differences between research teams. There was overlap in
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46 72 outputs between approaches, more in findings than recommendations. Rapid Analysis may have the
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48 73 potential to deliver valid, timely findings while taking less time. We recommend further comparisons
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50 74 using additional data sets with more similar research teams.
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55 76 **Keywords**
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3 77 Qualitative Research

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5 78 Health Services Administration & Management

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7 79 Maternal Medicine

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11 81 **Strengths and limitations of this study**

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13 82 • Our study explores a strategy to address the time-lag in reporting qualitative findings to
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15 83 clinicians and policymakers, which slows translation of research into practice.
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17 84 • This is the first comparison of qualitative analytical methods in applied health research
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19 85 which compares both researcher time *and* outputs, with a complete study dataset.
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21 86 • The work describes the process of comparing time and analytical outputs in detail, to inform
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23 87 others planning further methodological comparisons.
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25 88 • Due to the time lag in thematic analysis outputs, our study did not triangulate findings with
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27 89 the original participants.
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29 90 • The study uncovered important challenges in comparing analytical approaches between
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31 91 research teams which can inform the design future work in this area.
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92 BACKGROUND

93 Applied health research frequently adopts mixed methods, often using qualitative approaches.[1]
94 Applications of qualitative methods include: early work to identify areas for focus; throughout a
95 study to explore processes and user experience; following a trial or intervention implementation to
96 explain outcomes and/or identify stakeholder experiences, to explore in more depth questions or
97 issues identified through quantitative work; to problematise or ‘unpack’ issues or topics taken for
98 granted.[2] Increasingly this type of research can include a broader range of contributors, for
99 example where members of the public, patients, clinicians, and researchers are involved in analysing
100 and interpreting data to ensure a multi-disciplinary perspective, or pragmatically using several
101 researchers to code data in the interests of time.[3, 4]
102
103 Typically stakeholders want rapid results,[5-7] yet compared with quantitative approaches,
104 traditional qualitative approaches often considerable time is required to manage and interpret data,
105 and deliver findings.[8, 9] In a service context, delays may render the findings out of date, reducing
106 their applicability and relevance. There are examples of apparently more rapid alternatives to
107 traditional qualitative approaches, including specific end-to-end approaches such as Rapid
108 Assessment Process and Rapid Ethnography.[6, 9-13] There are four broad areas where time can be
109 saved; by reducing data collection time, for example by allowing less time between data collection
110 episodes;[6] by reducing data management time, for example by relying on untranscribed audio
111 recordings, notes, summaries and mind maps;[10-12] by minimising the time spent analysing data by
112 summarising as opposed to formally coding;[11, 13] by limiting the time spent on analysis by using a
113 ‘one sheet of paper’ summary to explore a sample of a large pre-coded dataset.[9] Often rapid
114 methods describe a broad approach, including activities from entering the field through to delivery
115 of findings, and/or involve mixed methods.[6, 7] This paper specifically explores whether rapid
116 *analysis* of qualitative data (distinct from end-to-end rapid methods) delivers equivalent findings to
117 traditional approaches, and how much time may be saved in practice.

118

119 There are a limited number of studies that have compared different qualitative analytical
120 techniques.[11, 14-16] In some of the empirical examples identified, methodologists have
121 predominantly compared methods of data collection (e.g. interviews versus internet forums[14]),
122 and focused on the number and content of codes rather than interpretation. Of the three examples
123 identified that compare analytical approaches one used focus group data to compare thematic
124 analysis of a partial dataset with mind-mapping of a full dataset.[11] While this paper provides
125 minimal detail regarding the method of comparison, it reported differences in time taken to analyse
126 the data, and in the number and presentation of codes. The second example compared software-
127 assisted and constant comparative approaches to analysis describing differences in the frequency of
128 codes and coding levels.[15] The third example compared analysis of focus group data directly from
129 audio recordings, with thematic analysis of transcribed data, and found that themes generated were
130 comparable.[16]

131

132 The work we present here was conducted as part of the Collaboration for Leadership in Applied
133 Health Research and Care (CLAHRC) programme in the West Midlands of England. CLAHRC involves
134 local teams across Universities and National Health Service organisations working in partnership to
135 deliver research to improve services for patient benefit.[17] As part of a service evaluation study of a
136 new home birth service, we gathered interview, focus group and documentary data. We then
137 compared the speed and outputs of rapid and traditional techniques applied to the same dataset.
138 For the Rapid Analysis (RA) we used the approach developed by Hamilton at UCLA.[13] We
139 compared this with Thematic Analysis (TA)[18] and the Framework Method which was selected due
140 to the team's existing familiarity with this approach, and the fact that it is increasingly applied in
141 multidisciplinary health services research.[8, 19]

142

143 **METHOD**

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2
3 144 This study compares rapid and traditional analyses of a UK health service evaluation dataset, to
4
5 145 explore differences in researcher time, and consistency of outputs. This was a mixed methods study,
6
7 146 quantitatively and qualitatively comparing the outputs of qualitative methods.
8

9 147

10 11 148 **SETTING**

12
13 149 The data came from a home birth service evaluation study in a hospital in the English National
14
15 150 Health Service which took place between October-December 2014. This was a service innovation
16
17 151 put into place by the hospital. A dedicated team of midwives was set up to provide antenatal, birth
18
19 152 and postnatal care to women choosing to have a home birth, with the aim of providing a more
20
21 153 reliable service, and increasing the local home birth rate.
22

23
24 154

25 26 155 **Characteristics of participants**

27
28 156 Home birth midwives (6), midwifery support workers (4), commissioners (4), managers (6), and
29
30 157 community midwives (12) and a patient representative (1) participated in the original study.
31

32 158

33 34 159 **Description of processes, interventions and comparisons**

35
36 160 In the original evaluation, an evaluability assessment approach was adopted,[20] and its specific
37
38 161 objectives were to: establish the original programme design and how the service differed from this
39
40 162 design and why; identify facilitators or barriers to implementation; establish what service data are
41
42 163 available, and how it is being /could be gathered; identify how staff would develop/improve the
43
44 164 service. The evaluation was a qualitative study, involving interviews and focus groups with key
45
46 165 participants involved in the home birth service.
47

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49 166

50
51 167 Twenty three provider and commissioning staff and one patient representative were purposively
52
53 168 sampled, with recruitment by direct email or telephone invite, with three unable to take part due to
54
55 169 availability. Twenty one semi-structured interviews informed by the study objectives were
56

1
2
3 170 conducted by [researcher 1] at participants' workplaces. A single focus group of 12 midwives was
4
5 171 facilitated by [researcher 1] and [researcher 2], also structured according to the study objectives. A
6
7 172 convenience sampling approach was taken for the focus group, with midwives available at the
8
9 173 allotted time invited to take part at their workplace. Participants were not known to researchers
10
11 174 prior to the study. Interviews and the focus group lasted approximately one hour, were digitally
12
13 175 recorded and transcribed for analysis, with minimal field notes taken. Participants did not review
14
15 176 transcripts. Eight key service documents were also utilised in the analysis (business case, service
16
17 177 guidelines, commissioning policy). The primary service review and secondary analysis were reviewed
18
19 178 by the University of Birmingham Ethics Committee, ref ERN_15-0127S. Local approval was obtained
20
21 179 from the hospital Research and Development Team. The data was analysed independently using
22
23 180 firstly RA and secondly TA as described in detail below. All researchers work in applied health
24
25 181 research in the same department of a UK University. Researcher 1 is a public health physician,
26
27 182 Researcher 2 is a registered nurse, Researcher 3 is a registered midwife. Researchers 4 and 5 are
28
29 183 health service researchers, Researcher 6 is a medical sociologist. A summary and comparison of the
30
31 184 process used for the two analyses is shown in Table 1. The work was undertaken using a
32
33 185 theoretically interpretive, generic qualitative approach across both teams.
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39 186

38 187 The primary Rapid Analysis (RA) ([researcher 1], [researcher 2], [researcher 3]))
39
40 188 RA was conducted between November and December 2014: this constituted the primary empirical
41
42 189 work which was subsequently reported to the service. The rapid qualitative analysis approach
43
44 190 used[13] was designed to deliver timely findings with methodological rigour. The approach includes
45
46 191 guidance on data collection and report writing and was developed using teams of less experienced
47
48 192 researchers. Here we have used only the analytical methodology and researchers experienced in
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50 193 qualitative methods. Hamilton relates how the reduced timeframe of rapid methods means that
51
52 194 they tend to be more deductive and explanatory than inductive and exploratory.[13] It can be
53
54 195 hypothesised that this may negatively impact on the ability of rapid methods to discover more
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3 196 'hidden' phenomena which one associates with traditional qualitative methods, and this must be
4
5 197 balanced with the speed at which rapid methods can deliver findings . In recognition of this, the
6
7 198 work presented here incorporated both inductive and deductive approaches, using a deductive
8
9 199 template to structure analysis, with explicit remit to highlight other issues which emerged
10
11 200 inductively from the data, though the focus was on inductive analysis. The process is presented in
12
13 201 detail in Table 1. Researchers spent approximately one hour with each transcript or document, as
14
15 202 stipulated by Hamilton in her description of the approach, noting key issues in a one-sheet,
16
17 203 structured 'summary template', with no formal coding. The data entered into the summary
18
19 204 templates focused on the main issues in the data, rather than every single issue that surfaced. The
20
21 205 RA summary template was made up of a number of sections describing participant and data
22
23 206 collection details, and deductive and inductive headings. At the end of the template there were
24
25 207 further sections to record key documents, observations, quotations, and reflections relating to the
26
27 208 data collection episode. The deductive aspects of the initial summary template were developed
28
29 209 from the research questions: rationale for implementing the home birth service, programme design
30
31 210 (structured according to logic model domains), facilitators and barriers to implementation, and
32
33 211 routinely gathered data about the service. This template was tested by both RA researchers as
34
35 212 described in Table 1. During this early testing process it was deemed necessary to inductively
36
37 213 develop a small number of additional subheadings for three of the template sections (rationale,
38
39 214 barriers, facilitators), to help the researchers to organise the data. Although the use of more
40
41 215 focused approaches has been highlighted to be of value when interpreting data for reporting in a
42
43 216 health service context, the need to maintain a thorough and transparent process must go hand in
44
45 217 hand with producing findings which are easily understood and relevant to stakeholders.[11] The
46
47 218 summary template accompanies this paper (Supplementary File 1). Summarised data was explored
48
49 219 with respect to the research objectives, to produce a report summarising findings and
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51 220 recommendations.
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3 222 Secondary Thematic Analysis using the Framework Method (TA) ([researcher 4], [researcher 5],
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5 223 [researcher 6])
6
7 224 The secondary analysis was conducted by [researcher 4] between June and September 2015, after
8
9 225 the original RA was complete, with oversight and support from [researchers 5 and 6]; all three are
10
11 226 experienced qualitative applied health researchers from outside of the original team. Typically, the
12
13 227 purpose of secondary analysis is to explore new research questions,[21]but in this case secondary
14
15 228 analysis was performed using a different method to meet the same objectives as the primary
16
17 229 analysis, to compare the outputs of the two methods. The original team ([researchers 1, 2 and 3])
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19 230 provided brief contextual details about the field, the organisations and participants involved, and the
20
21 231 background to the project. No further discussion occurred, to avoid revealing RA findings to the TA
22
23 232 team. The TA was informed by the original research objectives, using an inductive approach, and
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25 233 following the steps set out in the Framework Method, an approach to thematic analysis developed
26
27 234 by Ritchie and Lewis:[8, 19] familiarisation, coding, developing a framework, applying the
28
29 235 framework, charting data into the framework, interpreting data, and writing up. Table 1 summarises
30
31
32 236 the process

237 **Table 1: Description of the Rapid Analysis and Thematic Analysis**

		Rapid Analysis	Thematic Analysis
The researchers		Clinical background Embedded in the field First time using RA Shared office, opportunity to interact Evenly shared workload Main focus of work Conducted over short period Focused on producing and 'crafting'* outputs for known stakeholders	Not clinical No prior exposure to field Experienced in TA – no need to 'learn' No informal interaction/reflection [Researcher 4] conducted most of the analysis Conducted alongside other core work Project delivered over a longer period Less focused on the needs and expectations of stakeholders
Epistemological position		Theoretically interpretive, generic qualitative approach	Theoretically interpretive, generic qualitative approach
Data collection		Interviews, focus groups conducted, documents gathered from participants by [researcher 1], [researcher 2] facilitating focus group.	Provided with pre-gathered dataset.
Transcription		Audio recordings transcribed by third party. Transcripts checked for accuracy by researcher. Participant name retained in transcript	Pseudoanonymised transcripts and documents provided.
Timing		During and following data collection process.	Analysis conducted post-data collection.
Ordering		Interviews, then focus groups, then documents. Strategic participant data analysed first.	Documents, then interviews with strategic participants first , finally the focus groups
'Data management and review' stage	Early analysis	[researchers 1 and 2] dual analysed one interview transcript, inserting them into a 'summary template', organised according to the research objectives (see Supplementary File 1). They compared template content. The process and the template structure were reviewed and amended (some subheadings applied). A second transcript was subsequently dual analysed in the same way. The 'one hour per transcript' rule was not applied here, spending 1.5-2 hours on each.	An identical sample of three transcripts reflecting a range of job title and seniority were analysed independently by [researchers 4 and 5] and the themes that emerged discussed and finalised. These themes were arranged into analytical hierarchies i.e. consisting of the key themes and associated sub-themes and these formed the basis for the codification of the remaining data.
	Main analysis	Remaining data items allocated equally to [researchers 1 and 2], following the same process, limiting time to one hour maximum per data item (less for some less complex documents). Researcher entered information directly into a matrix, structured as the	[Researchers 4] independently analysed the remainder of the transcripts and the resulting themes and sub-themes were agreed with [Researcher 5] and formed the analytical hierarchy for the remaining data.

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		template, using individual templates duplicated work.	
'Interpretation' stage	Data interpretation	[Researchers 1 and 2] reviewed content in one another's matrices, and combined them. Data were allocated equally to [researchers 1 and 2] for interpretation and write up, organised according to the template, e.g. facilitators to implementation. The 'barriers' section was more complex, and this was subdivided it into themes which were allocated to [researchers 1 or 2], e.g. training, promotion and recruitment. A summary of findings and a set of recommendations were produced for each. Summaries were reorganised thematically.	<p>[Researcher 1] undertook interpretation and write-up of the findings according to the thematic headings.</p> <p>For each theme and sub-theme an explanatory sentence was produced and an exemplar quote or quotes was selected.</p> <p>These themes and sub-themes were used to create a list of findings specific to each overarching theme.</p>
	Final report writing	Summaries of findings and recommendations were combined and checked by [Researchers 1, 2 and 3] to eliminate duplication and reach consensus regarding interpretation, revisiting the primary data where necessary.	<p>These findings were used to inform a final report, populating the template provided by [researcher 1]. The report template included the following headings:</p> <ol style="list-style-type: none"> 1) Participants and data (not written up in secondary analysis) 2) Timeline for development of Service 3) Service design (logic models developed for intended and actual service design) 4) Achievements 5) Challenges <ol style="list-style-type: none"> 5.1) Barriers to implementing the model as intended 5.2) Barriers to delivering specific Service outcomes 6) Service data <ol style="list-style-type: none"> 6.2) Data being gathered 6.3) Responsibility for data collection/entry/analysis 6.4) What's going well in HBS data capture and use 6.5) Data-related challenges 7) Recommendations
Researcher interaction		[Researchers 1, 2 and 3] reflected and discussed the data and interpretation on a regular, iterative basis	[Researchers 4 and 5] had several telephone and one face to face discussion.

238 ***'Crafting' refers to the writing and editing of findings and recommendations to present content and language deemed to be appropriate to the service stakeholders by**
 239 **the RA team**

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5 241 Notes on methods used6
7 242 It is important to acknowledge that the creative and flexible nature of qualitative methods means8
9 243 that there is variation in the way different researchers undertake even established methods. While10
11 244 we refer to the methods with proper nouns, and summarise as 'TA' and 'RA' to provide clarity for the12
13 245 reader, it should not be assumed that these methods are 'fixed'. In addition, while we refer to the14
15 246 Framework Method analysis as 'TA', we acknowledge that the Framework Method is one of many16
17 247 approaches that fall within thematic analysis.[8] We provide a full description of our approach for18
19 248 transparency. It should also be noted that while both methods use matrices, the approaches are20
21 249 quite different, in that TA involves the detailed, inductive coding of data, producing a detailed coding22
23 250 framework, and more complex matrix which accounts more completely for the dataset. RA focuses24
25 251 on major issues identified in the data, no full coding occurs, and matrices are deductively26
27 252 constructed.28
29 25330
31 254 The comparison32
33 255 The comparative analysis was conducted between October 2015 and May 2016, comparing three34
35 256 aspects of the analyses: time taken, findings, and recommendations. Each team recorded the time36
37 257 taken to perform every activity. Analytical activities were divided into two broad areas: 'data review38
39 258 and management', and 'data interpretation and report writing', as indicated in Table 1. Summary40
41 259 statistics were produced using data from the resulting timesheets. Findings we defined as individual42
43 260 issues identified and included in a report. Recommendations were defined as suggested actions to44
45 261 improve or maintain the service. Each team then independently compared RA and TA findings,46
47 262 allocating a 'match', 'partial match' or 'mismatch' category. Both teams then met to discuss and48
49 263 reach consensus. Any mismatches were discussed, and perceived reasons agreed and recorded and50
51 264 summary statistics produced.52
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266 'Patient and Public Involvement'

267 This paper is a methodological exploration of two different means of qualitative analysis. There was
 268 no PPI involvement in establishing the criteria for comparison nor in facilitating the work. However
 269 PPI was intrinsic to the original programme from which the data was gleaned [17].

270

271 RESULTS

272

273 The research teams

274 Table 2 presents the characteristics of the two research teams.

275

276 **Table 2: Characteristics of the two research teams**

Rapid Analysis Researchers	Thematic Analysis Researchers
Clinical	Lead researcher not clinical
Embedded in field	No prior exposure to the field
BT collected the data	Did not collect data
Using Rapid Analysis for first time – developing new practice	Experienced in Thematic Analysis, using existing skills
Shared office	No shared space
Equal workload within team	IL conducted majority of analysis
Analysis main task at work	Analysis conducted alongside other commitments
Focused on producing outputs for known stakeholders	Much less focused on the stakeholder team

277

278 Comparison of time

279 Table 3 illustrates the time taken at each stage of the process, for the 'management' and
 280 'interpretation and report writing' stages defined earlier in Table 1. The four hours of background
 281 discussions to provide IL with context were not counted in the total.

282

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2
3 283 The RA data review and management took around a third of the time of the TA (43 hours and 116.5
4
5 284 respectively). The reverse was true of the report writing, RA was more than six times longer at 52
6
7 285 hours.
8

9 286

10 11 287 **Comparison of findings**

12
13 288 The comparison of findings is presented in Table 4. TA elicited marginally more findings than RA (153
14
15 289 v 131). There were 107 matches. There are differences in reporting style and level of detail in the
16
17 290 matched findings, with the example below highlighting how each team provided similar findings, but
18
19 291 with a varied degree of specific information. Both teams had examples where they provided more
20
21 292 or less detail than the other on a specific topic, but the reporting style in the RA was consistently
22
23 293 more 'polished', with findings more consistently framed in a way that would be more accessible to
24
25 294 the intended audience (explored further in the discussion).
26
27

28 295

29
30 296 *"There are issues around communication with ambulances/paramedics." TA finding*

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32 297

33
34 298 *"Some paramedics are unaware that the HBS exists and there have been delays of up to 30 minutes*
35
36 299 *between the paramedics being informed of a BBA and this being cascaded down to midwives." RA*
37
38 300 *finding*

39
40 301

41
42 302 Findings from one method frequently matched two or more from the other: 71 RA and 78 TA
43
44 303 findings delivered 107 matches. There were 43 partial matches, where findings identified similar, but
45
46 304 not identical issues (28 RA, 37 TA, some matching more than once), for example:
47
48

49 305

50
51 306 *"There was a general consensus that useful meetings with a range of stakeholders were hard to*
52
53 307 *arrange for a number of reasons including workload and shift pattern." TA finding*

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55 308

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2
3 309 *“While support is strong in-principle, there is no formal process for strategic-level consultation and*
4
5 310 *decision-making about the HBT within the provider Trust (outside of the Project Board). In addition,*
6
7 311 *busy workloads make collaborative working challenging.” RA finding*
8

9 312

10
11 313 Eighty findings could not be matched: 46 or 37% of all RA findings, and 34 (21%) of the TA findings.

12
13 314 Exploration (see Table 5) revealed that the most common reason for mismatches was that the other

14
15 315 team simply did not interpret the relevant finding from the data. The TA team did not find 11%, and

16
17 316 the RA team did not find 12% of the opposite team’s findings. The next most common reason was

18
19 317 that findings were specific or detailed, rather than key issues with broad relevance. The RA team

20
21 318 also reported 15 positive findings (successes and achievements) which the TA team did not include

22
23 319 in a report to the Service: the TA team reflected that they focused on constructive feedback about

24
25 320 challenges and areas requiring improvement, rather than positive findings (explored further in the

26
27 321 discussion). For example, the RA team reported “The HBT MWs are generally supportive of the need

28
29 322 for data collection and comply with this,” and “The Service has produced its first comprehensive

30
31 323 data report for the Project Board (November 2014).”
32
33

34 324

35
36 325 There were a small number of findings which emerged from interpretation of ‘what was not in the

37
38 326 data’. For example, the RA team reported that staff may not gain necessary qualifications for

39
40 327 deployment, which was a risk to service resilience, connecting data on staff training with other data

41
42 328 concerning service staffing requirements, rather than a direct report from research participants. The

43
44 329 TA team did not identify this finding. The RA team’s contextual knowledge meant that they

45
46 330 perceived some TA findings to be incorrect. For example, a TA finding suggesting that regular

47
48 331 meetings were helpful was rejected, as the RA team had been informed (outside of the formal data

49
50 332 collection) that the meetings were not functioning as intended.

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334 Finally, the RA team unconsciously suppressed two findings that were politically challenging: they
 335 agreed with these two findings from the TA team, which concerned relationships and performance
 336 of individuals connected to the Service (exact examples cannot be provided as they are of a sensitive
 337 nature). The RA team reflected that while they were aware of these issues, and also knew that the
 338 Service was aware of them, they did not write them up as findings in the report. This was not an
 339 actively documented, discussed decision-making process between the RA researchers: it was more
 340 implicit that they could not 'go there' in a report.

341

342

343 Some findings appeared to have no match, but cross checking revealed that the finding aligned with
 344 the other team's recommendations (9 RA and 3 TA findings). For example, the RA found that staff
 345 had requested more emergency training, and the TA recommendations included provision of more
 346 emergency training.

347

348 In terms of topics, the mismatched findings covered a range of different issues for the service.

349 Both teams identified findings missed by the other team, which covered operational issues and
 350 leadership and management issues for the Service. The RA team identified findings that were not
 351 elicited by the TA team relating to strategic issues, promotion of the service, and performance
 352 management (which were often positive findings about 'successes' not reported by the TA team).

353

354

355 **Table 3: Time taken to complete analysis using rapid analysis and thematic analysis**

	Rapid analysis team			Thematic analysis team				
	Activity	Time taken (hours)		Activity	Time taken (hours)			
		[R1]	[R2]	Total	[R4]	[R5]	Total	
Primary data review and management	Review 2 transcripts and develop summary template	6	5	11	Review/code initial transcripts	11	9.5	20.5

	Refine template	2	2	4	Developing framework	3	1	4
	Complete summary template for remaining transcripts	13	11	24	Review/code remaining transcripts	82		82
	Reviewing documents	2	2	4	Reviewing documents	4		4
	Reviewing matrix	2	3	5	Final themes	8		8
	Total	25	23	48	Total	108	10.5	118.5
Interpretation and report writing	Writing up findings	16	16	32	Writing up findings	4		4
	Writing recommendations	8	12	20	Writing recommendations	4		4
	Total	24	28	52	Total	8	0	8
TOTAL			100					126.5

356

357

358 **Table 4: Quantitative comparison of findings and recommendations elicited using rapid analysis**359 **and thematic analysis**

		Rapid analysis		Thematic analysis		Total
Findings	Matched	71	54%	78	51%	107
	Partially matched	28	21%	37	24%	43
	No match found	48	37%	32	21%	80
	Appears in other team's recommendations (not findings)	9	7%	3	2%	12
	Total*	131		153		N/A
Recommendations	Match	18	28%	32	34%	32
	Partial match	20	31%	26	28%	26
	No match	26	41%	42	45%	68
	Total*	64		93		N/A

360 *This does not reflect column total as findings/recommendations from one team frequently

361 matched (fully or partially) two or more from the other team

362

1
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3 363 **Comparison of recommendations**

4
5 364 Quantitative comparison of recommendations is presented in Table 4. The RA generated 64
6
7 365 recommendations, a third less than the TA. 18 of the RA recommendations matched to 32 of those
8
9 366 from the TA, and the individual RA recommendations tended to bring together multiple issues, and
10
11 367 were ‘crafted’ in such a way as to provide a smaller, number of recommendations combining
12
13 368 multiple points. For example the RA recommendation below encompassed three separate TA
14
15 369 recommendations:

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18 370

19 371 *Working model: urgently consult regarding whether the model (shift pattern/on call volume/accrued*
20
21 372 *time) is fit for purpose, and if it is, how MWs can be supported to avoid burnout. In addition,*
22
23 373 *consider whether the Service can realistically attend BBAs within this model, and if not how this key*
24
25 374 *objective for the Service can be achieved. (RA recommendation)*

26
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29
30 376 *Collect more precise data on which BBAs did or didn’t need to attend. Then look at feasibility of HBS*
31
32 377 *attending these women in the home. (TA recommendation 1)*

33
34 378 *Determine the capacity of current staffing levels and shift patterns. (TA recommendation 2)*

35
36 379 *Begin discussions with staff on preferences and flexibility in order to meet growing demand. (TA*
37
38 380 *recommendation 3)*

39
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41 381

42
43 382 Some recommendations were more directly matched, for example:

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46
47 384 *“Require future recruits to have achieved the minimum numeracy/literacy standard.”*

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49 385

TA recommendation

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51 386

52
53 387 *“Be clear on the necessary baseline skills in numeracy and literacy that are required.”*

54
55 388

RA recommendation

389

390 There were partial matches between 20 RA and 26 TA recommendations, for example.

391

392 *“Ensure robust lines of communication are in place between Home Birth Service and community*
393 *midwives.” TA recommendation*

394

395 *“Routinely feed back to referring professionals to confirm booking with Home Birth Service, or*
396 *transfer back to community midwives.” RA recommendation*

397

398 A further 26 (41%) of the RA recommendations, and 42 (43%) of the TA recommendations had no
399 match. Reasons are presented with examples in Table5.

400

401 The most common reason was that the other team did not identify a particular recommendation, RA
402 did not find 18 (35%) and TA did not find 3 (12%). Four of these TA recommendations related to
403 training of midwives, three were about organisation of meetings, and the remainder had no
404 common theme. The researchers determined that the midwife training recommendations were
405 important, and had been an analytical blind spot for the RA team. Other mismatched
406 recommendations were collectively determined to be of low importance by the researchers, except
407 for the TA team’s recommendation about projected milestones for the service.

408

409 The RA team made 19 recommendations based on ‘what wasn’t in the data’, interpreting beyond
410 the reported facts. The TA team made 15 recommendations which the RA team did not support, as
411 their contextual knowledge deemed them unworkable or inappropriate. Nine recommendations that
412 were not found in the RA recommendations were from the TA team who made a detailed list of
413 items for a future service dataset while the RA team provided less specific recommendations

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3 414 regarding a future data set. Finally, four recommendations were determined to be made due to
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5 415 contextual knowledge of the RA researchers.
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For peer review only

Table 5: suggested reason for mismatched findings and recommendations, with examples

	Suggested reason for other team not eliciting finding/recommendation	Rapid analysis	Thematic analysis	Total	Examples
Findings	Straightforward miss/error	16	17	33	"There has been no Audit against NICE guidelines for contact (number of visits)." - TA
	Specific/detailed	10	11	21	"Aromatherapy oils are expensive." TA
	Positive finding not reported	15	0	15	"Initial engagement visits to community teams by HBT members facilitated implementation." RA
	Finding emerged from 'what is not in the data' - higher level interpretation	5	1	6	"It is not known whether current MSW recruits will be successful in the 45 credit [training] module, and how Service needs will be met if they are not." RA
	The embedded team's knowledge of the context meant they did not agree	0	3	3	Examples suppressed as sensitive
	Suppressed as politically challenging	0	2	2	Examples suppressed as sensitive
	Total	46	34	80	
Recommendations	Straightforward miss/error	3	18	21	"Ensure that meetings are attended by as many of full and part-time workers as possible." TA
	Recommendation emerged from 'what is not in the data' - higher level interpretation	19	0	19	"Consider whether services which fall outside of 'standard' maternity care should be routinely offered, e.g. complementary therapies, hypnobirthing, pool provision, high frequency or duration of contact with women." RA
	Embedded RA team's contextual knowledge meant that they did not agree with recommendation	0	15	15	"Co-locate the HBS with other maternity services." TA – the RA team knew that this was not possible at the participating hospital trust.
	Specific/detailed recommendations for a service dataset or audit	0	9	9	"Frequency of texts between mother and midwives could be retrospectively collated to demonstrate improved accessibility." TA
	Contextual knowledge was used to develop recommendation	4	0	4	"Ensure that the HBT midwives are sufficiently familiar with Birth Centre/Delivery Suite facilities and protocols." RA – the TA team assumed this would be the case already
	Total	26	42	68	

320 **DISCUSSION**

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322 **Principal findings**

323 This study compared rapid and thematic analysis methods applied to the same dataset, to explore
324 whether RA provides timely, accurate outputs for services. RA data management took around a third
325 of the time of TA, but RA interpretation and write up took more than 6 times longer than TA. There
326 was considerable overlap in the findings and recommendations between the two methods, with RA
327 identifying marginally more findings than TA, and TA making marginally more recommendations
328 than the RA. The comparison identified qualitative differences in the depth and detail of findings
329 and recommendations in the two teams.

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331 **Strengths and limitations of the study**

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333 Strengths and limitations in the RA and TA processes

334 The qualitative analysis processes followed by each team have been described in detail to enhance
335 reproducibility and reliability. However, we acknowledge that work of this nature can never be
336 reproducible, due to the subjectivity of qualitative researchers and processes,[22] and the fact that
337 research is a situated practice, where some aspects of the activity are beyond the control of the
338 researcher.[23] In qualitative research there is much debate regarding subjectivity, reflexivity, and
339 bias.[22, 24] In the conduct of our work we attempted to minimise 'bias' and described our
340 methods in detail, though we have also retrospectively identified opportunities where others can
341 mitigate this further in future work. The findings of research such as ours, which does reflect on and
342 compare processes and findings in a systematic and detailed manner, can contribute to
343 understanding the challenges faced by researchers.[25] The characteristics of the researchers are
344 acknowledged and explored. Researchers were similar in that they were all experienced
345 postdoctoral health services researchers, working in the same Institute for some time, arguably with

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3 346 similar cultures, though we acknowledge that the human, interpretive nature of qualitative research
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5 347 means that standardisation or researchers within and between the teams is not possible. There were
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7 348 differences between the researchers (see Table 2). These factors may have conferred variation in
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9 349 analysis and interpretation.

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13 351 The RA team had greater contextual knowledge resulting from previous clinical exposure as health
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15 352 professionals, and working closely with the service. This appeared to impart an underlying level of
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17 353 understanding that was critical to the findings and particularly recommendations. It is useful to think
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19 354 about the concept of research as a situated practice in the context of our work. This may be
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21 355 particularly relevant for researchers who are 'embedded' in some way within the service being
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23 356 researched. Whilst such embeddedness can help to provide useful insights into the meaning and
24
25 357 relevance of research findings it is important to be aware that this may unconsciously influence data
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27 358 interpretation.[23] RA in a health service setting without this background knowledge may be
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29 359 inappropriate. Around a third of RA findings were not accounted for by the TA: RA generated a large
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31 360 number of additional findings, suggesting that closeness to the field and data may have conferred an
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33 361 advantage. It has been recommended previously that contextual information should be provided to
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35 362 secondary analysts to mitigate the lack of exposure to the field.[21] The intended comparison of
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37 363 methods and need to avoid conferring between teams meant that the TA only received brief
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39 364 information, rather than the rich, iterative contextual information that may be more typically
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41 365 provided within secondary analysis.

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49 368 The RA was conducted for a specific group of stakeholders, and the interpretation, and crafting of
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51 369 findings and recommendations was done with these individuals in mind. Though not conscious of
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53 370 this at the time of analysis, on reflection we believe that this focus on a specific audience, in addition
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55 371 to [researchers 1 and 2]'s relationship and sense of reciprocity with the service, may have resulted in

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3 372 a more lengthy approach. We reflected that it also resulted in more focus on reporting positive
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5 373 findings, or 'good news' in the RA team, and suppressing negative findings that concerned
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7 374 individuals, which the RA researchers deemed inappropriate to report in an evaluation output that
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9 375 would be widely shared. This contrasts with the TA which was a 'desktop exercise', with no
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11 376 commitment to the research participants, which we feel made the process more straightforward,
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13 377 with less need for careful presentation of data. This provides a clear example of researchers
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15 378 navigating the "politics of research", telling stories differently as a result of the different purpose
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17 379 and context of the research.[26]
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21 381 A second factor in explaining the lengthy RA is that it is the first time that [researchers 1 and 2] have
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23 382 used RA. Adapting to a new method can take time and discipline is required not to refer to more
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25 383 familiar, lengthier practices. However the number and detail in the findings and recommendations in
26
27 384 the RA (131, 62 respectively) was similar to those in the TA (153, 93). For qualitative researchers
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29 385 trained in TA it may be difficult to wholly adopt the brevity required of RA.
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34 387 The TA was predominantly conducted by one researcher [researcher 4], providing fewer
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36 388 opportunities for reflection in the TA development. The RA team also had the opportunity for
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38 389 ongoing regular reflection due to shared office space, which may have enhanced but also
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40 390 lengthened the process.
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45 392 Our approach to this work was pragmatic, based on available researcher capacity, and there was
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47 393 variation in researcher characteristics, in their programmes of existing work, and embeddedness in
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49 394 the field for this study, which may have impacted on the outputs from the work. In future
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51 395 comparisons, involving some or all of both teams in data collection would provide equality in
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53 396 exposure and embeddedness, and increasing similarity in researcher characteristics could provide
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55 397 further parity. The workload and capacity issues are more problematic. The time taken to
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3 398 undertake analysis varies from project to project, based on the available time, deadlines, funding
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5 399 and competing priorities. Generally there is always scope for extended analysis of data to explore it
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7 400 further, and researchers must make pragmatic decisions about when analysis for a specific project is
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9 401 'finished'. It is likely that there is variation between decisions to cease analysis between research
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11 402 teams, particularly in our comparison, where the analysis was a 'desk top exercise' for the TA team
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13 403 and a 'real' project with stakeholders expecting outputs from the RA team, meaning the latter may
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15 404 be more inclined to spend longer on the project. To mitigate this, increased parity across the RA and
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17 405 TA researchers could be achieved by using two equal-sized teams, with equal division of labour, and
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19 406 explicit allocation of capacity to the project. However, it is still impossible to standardise decisions
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21 407 regarding what constitutes 'enough' work on a dataset.
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26 409 Strengths and limitations in the comparison process

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28 410 This paper has provided an opportunity to explore and reflect on approaches to comparing
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30 411 qualitative methods. The limited evidence base necessitated the development of the comparison
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32 412 methodology. The study team regularly met to review the process, emerging findings and
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34 413 interpretation to enhance the rigour of the exercise. A mixed methods approach was undertaken in
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36 414 order to explore RA, which allows for a broader exploration of a phenomenon (the analytical
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38 415 process) than quantitative or qualitative methods alone.[27-29] However, the qualitative aspect was
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40 416 restricted to evaluation of the alignment content outputs of the research and description of the
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42 417 researcher characteristics and activity diaries by the researchers themselves. Future comparisons of
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44 418 methods could be strengthened with the addition of independent qualitative evaluation of the
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46 419 research processes and outputs. A limitation of the quantitative approach to comparing outputs
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48 420 from qualitative work is that it reduces findings and recommendations, directly comparing individual
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50 421 outputs which display different levels of depth and detail. It is important to highlight that 'more'
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52 422 does not necessarily equal 'better' in qualitative research outputs.
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3 424 An important consideration when undertaking comparison of methods is the variation in processes
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5 425 between individual researchers. For example, while TA using the Framework Method follows an
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7 426 established process described in the literature, it is acknowledged that the complex nature of
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9 427 qualitative analysis, and the role of the researcher in the process, means that there will always be
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11 428 variation between researchers in the exact physical and cognitive processes involved. It is therefore
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13 429 not possible to 'standardise' between researchers, within or between the two methods being
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15 430 compared. Whilst we perceive comparisons of this nature to be worthwhile in order to develop and
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17 431 understand the applications of qualitative methods, they must include detailed description of and
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19 432 reflection upon the processes and researchers.

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26 435 The complexity of the process only became clear once the researchers began to compare the data.
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28 436 Differences in style and the degree of 'polishing' of the content and language with the RA team
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30 437 'crafting' findings and recommendations deemed sensitive and appropriate to be shared with
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32 438 stakeholders, and the resulting impact on time taken, was not apparent until analyses were
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34 439 complete and outputs shared. In addition, devising an approach to categorising and reporting
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36 440 mismatched findings and recommendations took time and was not as intuitive.

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41 442 A further limitation is the fact that the comparison was conducted by the researchers themselves,
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43 443 due to pragmatic resource constraints. While we acknowledged this and aimed to maintain
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45 444 objectivity, there is clearly a risk of bias in interpretation, and future projects should consider
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47 445 involving an independent, blinded third party to conduct the comparison.

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51 447 An unexpected outcome of this study is that it has encouraged us to reflect deeply on our own
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53 448 research practice, resulting in a better understanding of our methods and role. Future comparisons
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55 449 may benefit from independent exploration of the researchers' individual processes alongside the

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3 450 'outcomes' of time, findings and recommendations. It is clear that there are a number of barriers
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5 451 which may constrain the research process in a service evaluation of the type we conducted. Greater
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7 452 reciprocal appreciation that these exist, and what they are, may help to facilitate discussions where
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9 453 there are unexpected or unpalatable research findings.[30]

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11 454 The initial intention was to involve participants in reviewing the importance of mismatched findings
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13 455 and recommendations. This was not practicable due to the unexpected length of time taken to
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15 456 complete the comparison, and the need for service stakeholders to determine whether mismatches
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17 457 would have been helpful many months in the past.

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22 459 It is important to note that all researchers in this study were experienced in qualitative health
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24 460 research using TA, and as such this study does not explore RA and TA for novice researchers.

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28 462 Possible explanations for the differences in time taken to conduct analysis

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30 463 The time taken in the RA was much shorter at the data review and management stage, equating to
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32 464 around two weeks less whole time equivalent (WTE) researcher time. This suggests that managing
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34 465 data in this way within a short timeframe is possible. However, the interpretation and reporting
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36 466 phase was much longer with RA (6.5 days versus one day in TA). A number of factors may have
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38 467 contributed. Time saved in coding and data management may result in more time being required at
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40 468 the interpretation stage in RA. This needs further exploration, RA only took three WTE researcher
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42 469 days less than TA, which may be of little benefit to academic or health service stakeholders. There
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44 470 are further possible explanations: the researchers' relationship with the service, the purpose of the
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46 471 research, the capacity of researchers, and the fact that the RA team were learning a new skill. This is
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48 472 explored earlier in the strengths and limitations section.

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53 474 Possible explanations for the difference in findings

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3 475 The RA findings accounted for 78 of the 153, or 79% of the findings delivered by the TA. This
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5 476 considerable overlap indicates that TA, which codes all data, did not produce many additional
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7 477 findings. This is consistent with others' findings comparing themes generated from different
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9 478 analytical approaches.

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13 480 The most common reason for mismatches in findings was that the researchers had not identified the
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15 481 issue in error. In the RA, patterns and findings may have been missed as a result of the more
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17 482 deductive approach taken, and the reduced time spent with primary data. However, there was a
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19 483 'did-not-find rate' of around one in ten for both methods, suggesting that this was not the case . The
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21 484 mismatches suggest that qualitative researchers will never elicit perfectly overlapping findings,
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23 485 regardless of method.

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28 487 A number of mismatches were accounted for by unconscious suppression of challenging findings,
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30 488 higher level interpretation, and differences in contextual knowledge leading to the rejection of
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32 489 findings. These explanations were more prevalent in the RA team, suggesting that embeddedness
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34 490 influences these processes. Between a quarter (RA) and a third (TA) of the mismatched findings were
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36 491 somewhat detailed, highlighting differences in natural reporting style, interpretation and
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38 492 prioritisation of what was meaningful. Again, this may arise between different researchers,
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40 493 regardless of method. Mays and Pope relate how observations are "*limited by definition to the*
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42 494 *perceptions and introspection of the investigator,*"[31] and variations in perception and introspection
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44 495 are inevitable between different individuals. There are different views regarding whether qualitative
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46 496 findings should be reproducible,[32] but we take the stance that subjectivity and individual variation
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48 497 make this impossible. This has been a useful exercise in reflexivity, demonstrating how experiences
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50 498 and unconscious processes impact on findings.

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3 500 The TA team did not report positive findings, accounting for a further portion of the mismatch: this
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5 501 was attributed to differences in interpretation of the project scope, rather than analytical processes
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7 502 delivering different results. Also the TA team were aware that they would not be presenting findings
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9 503 to providers, meaning that they felt more able to be critical and candid.

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13 505 Possible explanations for the difference in recommendations

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15 506 The recommendations also demonstrated overlap, with around three out of five being accounted for
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17 507 by both teams. However, RA did not pick up a third of the TA recommendations. We perceive that
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19 508 the majority reflected relevant but non-essential detail, and the 'make or break' recommendations
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21 509 that were key to the sustainability of the service were not missed, though we acknowledge that this
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23 510 is a subjective judgement. Arguably the most important recommendation missed related to training
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25 511 midwives in administrative and management skills. This detail is consistent with the TA process,
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27 512 where the data was explored in more depth, leading to more precise recommendations. However,
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29 513 this pattern was not observed in the findings. A possible explanation is that the RA team, with the
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31 514 eventual audience in mind, were more conservative in the number and detail of recommendations.
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33 515 Over half of RA recommendations that the TA did not find were accounted for by higher level
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35 516 interpretation and contextual knowledge, and just under half of the TA mismatched
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37 517 recommendations were deemed inappropriate by the RA team due to contextual knowledge,
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39 518 suggesting that embeddedness in the field confers advantages, separate from the method used.

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47 521 **CONCLUSION**

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49 522 We found that RA was appropriate and delivered valid findings and recommendations, with
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51 523 reassuring but not complete overlap. Mismatches appeared to relate to minor or detailed issues. RA
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53 524 enabled considerable time savings in data management , but may not be as rapid as assumed.
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55 525 Further work is needed, addressing the limitations identified, to establish how much time

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3 526 experienced RA researchers can save, whether differences in outputs are due to the analytical
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5 527 method or other influences, and whether these are relevant and of practical benefit for stakeholders
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7 528 and to services. Researcher characteristics, conduct, and roles are key, and our impression is that RA
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9 529 requires the researchers to be embedded in the field.

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13 531 We do not advocate RA for granular exploration of complex questions, for example individuals'
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15 532 experience of phenomena. It could be used to rapidly identify issues for further, in depth qualitative
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17 533 exploration. RA represents one of many tools of the qualitative researcher's trade, with particular
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19 534 potential for use in applied health research, when timely reporting is needed. We advocate further
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21 535 work to identify the practical application and use of different rapid approaches in practice.
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541

542 COMPETING INTERESTS

543 Competing interests: All authors have completed the ICMJE uniform disclosure form
544 at www.icmje.org/coi_disclosure.pdf and declare: no support from any organisation for the
545 submitted work; no financial relationships with any organisations that might have an interest in the
546 submitted work in the previous three years; no other relationships or activities that could appear to
547 have influenced the submitted work.

548

549 AUTHORS' CONTRIBUTIONS

550 The original idea for the project was conceived by SK. The study was designed by BT with intellectual
551 input from all authors. Primary data collection was conducted by BT. Rapid analysis of data was
552 conducted by BT and CH, with input from SK. Thematic analysis of data was conducted by IL with
553 input from SG. Comparison of time data was conducted by BT, and checked by CH and IL. Initial
554 comparison of findings and recommendations was conducted by BT, CH, IL and SK, and all authors
555 reviewed outputs from the comparison. The preliminary draft of the paper was written by BT. This
556 was critically reviewed by CH, IL, SG and SK for important intellectual content and subsequent
557 revisions to the paper were undertaken by BT as a result. Final approval of the version of the paper
558 to be published was granted by BT, CH, IL, SG and SK, who all also agreed to be accountable for all
559 aspects of the work in ensuring that questions relating to the accuracy or integrity of any part of the
560 work are appropriately investigated and resolved.

561

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2
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4
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6
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8
9 565

10
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18
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22
23 572 interpretation.

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26
27 574 CH acknowledges support from the NIHR Oxford cognitive health Clinical Research Facility.

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31 576 **DATA SHARING**

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33 577 Data is securely stored at the University of Birmingham in line with our information governance and
34
35 578 data protection policies. Due to the confidential nature of our qualitative data, which may identify
36
37 579 individuals even following anonymization, we have not made the data publicly available, in line with
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39 580 our research permissions and consent.

581 **LIST OF ABBREVIATIONS**

582

583 RA – Rapid Analysis

584 TA – Thematic Analysis

585 CLAHRC – Collaborations for Leadership in Applied Health Research and Care

586 MSW – Midwifery Support Worker

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Summary Template

Home Birth Service Exploratory Review Summary Template	
PREPARED BY:	
DATE:	
DATA TYPE (document, interview transcript, focus group transcript):	
FOR INTERVIEWS AND FOCUS GROUPS:	
<i>PARTICIPANT IDENTIFIER/S</i>	
<i>PARTICIPANT ROLE</i>	
<i>PARTICIPANT ROLE IN THE HBS</i>	
FOR DOCUMENTS:	
TITLE	
DATE OF PRODUCTION	
AUTHOR	
RATIONALE FOR IMPLEMENTING HBS (POLICY, EVIDENCE, OTHER)	
What was the problem, what was going wrong?	
What was the vision (envisaged outputs, outcomes, impact)	
TRAINING:	
PROGRAMME THEORY/LOGIC MODEL:	
<i>INPUTS (resources, people)</i>	
<i>ACTIVITIES (what workers do, e.g. promotional work, clinical care)</i>	
<i>OUTPUTS (what activities deliver, e.g. women informed about the HBS, women receive intrapartum care at home) and OUTCOMES (results of the outputs, e.g. women book with the HBS, women give birth at home)</i>	
<i>IMPACT/GOAL (overall aims of programme, e.g. home birth booking rate increases, home birth rate increases)</i>	
FACILITATORS of IMPLEMENTATION	
Planning/process	
People	
Culture	
Money	
Organisation/bureaucracy	
Evidence/policy	
Other	
BARRIERS TO IMPLEMENTATION AND SOLUTIONS	
Planning/process	
People	
Culture	
Money	
Organisation/bureaucracy	
Evidence/policy	
Other	
ROUTINELY GATHERED DATA (HOW,WHERE, WHEN, WHO COLLECTED, WHERE DATA HELD)	
KEY DOCUMENTS WE SHOULD INCLUDE (e.g. service specification)	
OTHER IMPORTANT OBSERVATIONS	
IMPORTANT QUOTATIONS	
REFLECTIONS ON THE DATA COLLECTION EPISODE	