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Mass food challenges in a vacant COVID-19 stepdown facility: exceptional opportunity provides a model for the future

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37

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39 National Treatment Purchase Fund.

40

41 **Conflicts of interest**

42 None to declare

43

44 **Data Availability**

45 All data are available for sharing on written contact with the corresponding author

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50 **Abstract.**

51 **Background:** Internationally, the COVID-19 pandemic severely curtailed access to
52 hospital facilities for those awaiting elective/semi elective procedures. For allergic
53 children in Ireland, already waiting up to 4 years for an elective oral food challenge
54 (OFC), the restrictions signified indefinite delay. At the time of the initiative there were
55 approx 900 children on the Children's Health Ireland (CHI) waiting list. In July 2020, a
56 project was facilitated by short term (6 weeks) access to an empty COVID stepdown
57 facility built, in a hotel conference centre, commandeered by the Health Service
58 Executive Ireland (HSE). The aim was to the achieve rapid rollout of an off-site OFC
59 service, delivering high throughput of long-waiting patients, while aligning with existing

60 hospital policies and quality standards, international allergy guidelines and national social
61 distancing standards.

62 **Methods:** The working group engaged key stakeholders to rapidly develop an offsite
63 OFC facility. Consultant Paediatric Allergists, Consultant Paediatricians, trainees and
64 Allergy Clinical Nurse Specialists were seconded from other duties. The facility was
65 already equipped with hospital beds, bedside monitors (BP, Pulse, Oxygen saturation)
66 and bedside oxygen. All medication and supplies had to be brought from the base
67 hospital. Daily onsite consultant anaesthetic cover was resourced and a resuscitation
68 room equipped. Standardised food challenge protocols were created. Access to the
69 onsite hotel chef facilitated food preparation. A risk register was established.

70 **Results:** After 6 weeks planning, the remote centre became operational on 7/9/2020,
71 with the capacity of 27 OFC/day. 474 challenges were commenced, 465 (98%) were
72 completed, 9 (2%) were inconclusive. 135 (29%) OFC were positive, 25 (5%) causing
73 anaphylaxis. No child required advanced airway intervention. 8 children were transferred
74 to a base hospital. The CHI allergy waiting list was reduced by almost 60% in only 24
75 days.

76 **Conclusions:** OFCs remain a vital tool in the care of allergic children, with their cost
77 saving and quality of life benefits negatively affected by delay in their delivery. This
78 project has shown it is possible to have huge impacts on a waiting list efficiently,
79 effectively and safely with good planning and staff buy in – even in a pandemic. Adoption
80 of new, flexible and efficient models of service delivery will be important for healthcare
81 delivery in the post-COVID-19 era.

82
83 **Key words:** Food allergy; food challenge; COVID-19; health care delivery

84
85 **Key messages**

86 Access to food challenge is often difficult in blended health services. Ireland's paediatric
87 allergy service took advantage of an empty, offsite COVID-19 stepdown facility to perform
88 474 food challenges in 24 days, with results and safety outcomes no different to those
89 for challenges in their base hospitals. Allergologists must advocate for and adapt to
90 external opportunities as much as they do to resource limitations.

91

92 **Abbreviations**

93	CNS	Clinical Nurse Specialist
94	HSE	Health Service Executive
95	NTPF	National Treatment Purchase Fund
96	OFC	Oral Food Challenge
97	QoL	Quality of Life
98	SOP	Standard Operating Procedure
99	RTI	Respiratory Tract Infection

100 **Introduction**

101

102 Health services around the world have had to adapt to the massive additional demands
103 of the SARS-COV-2/COVID-19 pandemic. They had to change working practices and
104 cultures, adapt existing facilities, build new ones and develop new ways to meet the
105 needs of COVID-19 patients, while balancing support for other aspects of healthcare.
106 Some changes have become embedded but some developed contingencies were
107 unused.

108

109 The oral food challenge (OFC), the bedrock of allergy diagnostics, is a resource-
110 intensive, lengthy procedure, necessitating, in every case, experienced staff and
111 immediately available facilities to manage anaphylaxis. Despite evidence of quality of
112 Life (QoL) benefits⁽¹⁾ and cost savings to health services⁽²⁾, access to adequate,
113 dedicated facilities is unusual in many countries. Most hospital-based allergy
114 departments compete with other disciplines for shared dayward facilities resulting in long
115 waiting times. Office-based allergists in the US and Canada report similar limitations of
116 space and staffing.^(3,4) In 2020 these universal barriers were raised further due to the
117 unique service demands imposed by the pandemic.

118

119 During the early stages of COVID-19 preparedness planning, Ireland's Health Service
120 Executive (HSE) commissioned the construction of a 350-bed stepdown facility to cope
121 with the expected surge of convalescent cases of COVID, to be used after admission to
122 acute hospital. It was built in a convention facility more than 10km from the base hospital
123 services. It opened in May 2020 but the surge of cases did not materialise. In July 2020

124 HSE advertised for projects that might avail of the facility before its planned
125 decommissioning in October 2020.

126

127 We report here the planning, rapid implementation and results of an initiative to use the
128 fully commissioned but hitherto unused 350-bed COVID stepdown facility/Nightingale
129 hospital for the concentrated delivery of a high volume of OFCs to address a long waiting
130 list. At the time of the initiative there were approx 900 children on a waiting list for OFC.
131 In the other allergy centre in Cork University Hospital, 250 km away from Dublin, 250
132 other children were awaiting OFC.

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149 **Methods**

150 **Planning**

151 A planning committee was established including operational management, paediatric
152 allergists, general paediatricians, anaesthesiologists, nurses, pharmacists, biomedical
153 engineering and clerical staff. This committee met weekly for 5 weeks, before the
154 planned 6-week initiative. Inputs were sought ad hoc from other groups, such as
155 resuscitation training teams and infection control.

156

157 **Funding**

158 “Waiting list initiative” funding was obtained from Ireland’s Health Service Executive’s
159 (HSE) National Treatment Purchase Fund (www.ntpf.ie), established to fund access to
160 health care as determined by national priorities. NTPF funding usually facilitates access
161 to private health care facilities to address waiting lists for uninsured patients awaiting
162 procedures in Ireland’s public hospitals.

163

164 **Critical risk assessment**

165 A key decision made in the first planning meeting was to fund and fully resource
166 attendance of a Consultant Paediatric Anaesthesiologist for each day of the activity. This
167 was decided as the facility was not close to the base hospitals, so it was necessary to
168 ensure on site advanced airway support in case it was needed during the expected cases
169 of anaphylaxis, despite anaphylaxis being a relatively unusual event during food
170 challenge - 3-5% of OFCs.⁽⁵⁾ A further key enabler was a decision made later in
171 planning to reduce the initiative from 5 working days each week to 4 days to allow
172 Consultant staff attend to other responsibilities on the 5th day and to avoid overworking
173 other staff with 5 working days starting at 7am, often lasting 1 2 hours.

174

175 **Simulation**

176 A dry run of patient flow from registration to discharge was attended by most staff, led by
177 the resuscitation team and lead anesthesiologist, to include initial challenge assessment,
178 beside treatment and stabilization.

179

180 **Documentation**

181 Electronic health records are not yet established in Ireland, so paper charts were
182 securely transported from each of the 4 base hospitals, as needed. A standardized
183 proforma was used for the clerking of patients and recording of outcomes irrespective of
184 hospital of origin.. A prepopulated prescription chart was developed which only needed
185 patient-specific, weight-based doses to be individually charted. A COVID health checklist
186 was developed with questions about the attending child and the attending parent (only 1

parent was allowed to attend) and each family was telephoned the day before OFC attendance to ensure there were no emerging concerns re COVID.

189

190 **Staffing**

Colleagues working in regional allergy departments were invited to take part, providing a supervisory team of 3 Consultant Paediatric Allergists, and 4 Consultant Paediatricians with a special interest in Allergy. Similarly, trainee paediatricians with previous allergy experience were offered the opportunity to join the initiative creating a pool of 9 trainees. Allergy Clinical Nurse Specialists (CNS) already employed by the base hospitals were made available as needed for the duration of the initiative. A retired Allergy CNS, 2 Allergy Research Fellows and a family doctor with experience in OFC were paid per diem to participate. Consultant anaesthesiologists attended during their resting time from their ordinary shift system; no elective peri-operative or other work was compromised or delayed. Staff and patients travelling from Cork to Dublin were given free accommodation in a nearby hotel the night before their scheduled attendance for OFC. For most of the time 2-4 senior cycle medical students were available to support nursing and medical staff, although they were principally there to take clinical histories and practice clinical examinations, which were then assessed by the trainees and Consultants. The Convention Centre's full time chef and kitchen staff received instruction from clinical staff on food preparation for OFCs, risks of cross contamination, appropriate foods and condiments to provide. A standard operating procedure (SOP) was developed for the preparation of each type of food challenge. A senior member of the medical team liaised with the kitchen staff daily.

210

211 **Staff wellbeing**

All staff work masks at all times, adhered to hospital hand sanitising policy and wore gloves to handle food and during patient contacts. A huddle occurred at the start of each day to focus on staff wellbeing (COVID-19 health in particular) and to disseminate lessons or "pearls" and feedback on issues that had occurred during the initiative. A flip chart was used for information and motivational messaging. Free coffee, snacks and lunch were provided and staff were rigorously rostered for breaks in an adjacent suite of clinical rooms, where they could rest, eat and support each other.

219

220 **Waiting list validation**

221 Long waiters from 3-4 years were reviewed in additional clinics during the planning phase
222 to validate their ongoing need for OFC. This might have changed due to natural
223 resolution of their allergy or due to repeated exposures/reactions in the field, which would
224 have negated the need for supervised OFC.

225

226 **Adaptation of OFC conduct to the facility**

227 Open, not double-blind, challenges were performed, following the standard PRACTALL
228 guidelines of incremental dosing, separated by 20-30 minutes with pre-dose clinical
229 assessments by the general nurse and doctor as needed.⁽⁶⁾ To shorten the duration of
230 each challenge, the usual first dose, of 10 mg of allergen protein, to which around only
231 approximately 5% of children react ⁽⁶⁾ was omitted. Each challenge meal was prepared by
232 the Convention Centre's full time chef and kitchen staff and was visually screened,
233 signed and labelled by at least one doctor and nurse before being used at the bedside.
234 The Allergy CNS or doctor in each pod supervised and signed for each administered
235 dose. Families arrived at the facility at 7.30am with all challenges commenced by
236 8.30am. Children were allocated to a pod randomly as they arrived; they were not
237 preallocated or grouped according to age or food type. Children had to stay on their bed,
238 and no toys/media were provided, to prevent sharing. All children were brought to the
239 bathroom in wheelchairs by staff/students, to prevent potential augmentation of emerging
240 allergic reactions by exercise. Parents were not allowed circulate or socialize with each
241 other but could singly access refreshments and the bathroom.

242

243 To perform multi-person food challenges simultaneously, while maximizing human
244 resource efficiency, an 18-bed bay with piped oxygen available, was divided into 3X6-bed
245 pods with movable screens placed between the pods to discourage "inter-pod" staff
246 movement. (Appendix 1). Each pod had a similar staff quota: 1 Allergy CNS to oversee a
247 total of 6 challenges, supported by 1 general pediatric nurse, 1 paediatric medical trainee,
248 to clerk, examine each patient, take written parental consent and child assent and to
249 prescribe emergency medication as appropriate, and 1-2 medical students. Staff were to
250 stay in their pod, except when needed to support emergency care elsewhere, while the 2

251 supervising Consultants moved between the 3 pods, assessing each of up to 18
252 simultaneous challenge's progress and evaluating emerging allergic reactions. Each pod
253 was stocked and resupplied as needed with emergency medication sufficient for the
254 needs of six patients. Medications were not pre-prepared/drawn up separately for each
255 patient.

256
257 Our local published experience was that up to 50% of OFCs are positive⁽⁵⁾ and need
258 medical attention for up to 2 hours after any reaction is complete. The other 50%
259 negative OFCs need no treatment after the final dose. Therefore, a further 9 children
260 were booked to arrive at 11.30 am in a further 2 pods. These were staffed by moving staff
261 away from children with negative challenges, whose lower level of care was delegated to
262 other staff for continuous observation. A total of 27 OFCs would be completed each day if
263 every bed was used as projected.

264
265 The first day of the programme scheduled only 10 patients to allow for a smooth launch
266 and necessary trouble shooting. A few days had lower planned numbers of challenges
267 than 18, for operational reasons that predated the initiative.

268 269 **Timeline**

270 The first meeting took place on July 17th 2020, the first patients attended on September
271 6th 2020 and the last patient was challenged on October 15th 2020.

272 273 **Ethical permission**

274 Ethical permission was not sought for this quality improvement initiative. All parents and
275 patients as appropriate gave written consent for the food challenge procedure, using
276 standard, approved HSE forms.

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293 **Results**

294 **COVID-19 safety**

295 No parent or child presented to the site with symptoms suggestive of COVID. Eight
296 children did arrive at site with mild respiratory symptoms but none was febrile, all 8 were
297 isolated, medically assessed and discharged without starting OFC. Increasing COVID
298 levels across Dublin, and escalation of pandemic national controls to level 3 (of 5) ⁽⁶⁾ in
299 Dublin in the 4th week, led to cancellation of patients travelling from Cork. Cork staff also
300 stopped travelling in the 6th, final week. One staff member developed COVID-19
301 infection through a community contact. No close contact action in the field hospital was
302 deemed necessary by Occupational Health.

303

304 **Challenge outcomes**

305 482 patients were admitted for OFC (Figure 1). Their age range was 2-18 with a median
306 age of 8yr. Six patients were admitted for two separate challenges on different days.
307 474 OFCs were performed over 24 days. 396 (84%) of the OFC were to peanut, single
308 tree nuts or sesame seed. The other 78 OFC included challenges to wheat, baked and
309 whole egg and milk, fish, shellfish, kiwi and pulses.

310

311 **Reactions**

312 135 (28.5%) of 474 children reacted during OFC (Table 1). The majority were advised to
313 continue to avoid the food used in OFC but 14 were discharged on graded introduction
314 protocols. 9 (2%) OFCs were inconclusive and those patients were advised to continue

315 to avoid their index food. One child reacted mildly to the first dose. Reactions were
316 witnessed to all allergens except white fish. The highest rate of reactions were seen with
317 sesame, wheat and walnut. 25 (5%) patients were treated as per anaphylaxis protocol
318 with 7 of these (1.5% of total OFCs, 28% of those who got any adrenaline) receiving a
319 second dose of adrenaline. No child received advanced airway interventions. The 7
320 children who received two doses of IM adrenaline and a further child, with sustained
321 tachycardia after 1 dose of adrenaline, were transferred to a base hospital. All were
322 stable before transfer and were discharged home the following day. These cases are
323 being reported in detail separately. 61 (13%) of patients were discharged from any follow
324 up on the day of the OFC.

325

326 **Delayed reactions**

327 One patient returned to the facility with ocular swelling, 2 hours post discharge after a
328 negative pistachio challenge. This was considered a delayed allergic reaction and
329 pistachio avoidance was advised. One child who had reacted to baked egg continued to
330 experience abdominal symptoms after discharge, which settled by the next day without
331 further medical intervention. Nine (2%) families contacted the base hospital's allergy
332 department within 2 weeks of food challenge with concerns regarding tolerance of the
333 introduced food. One child was experiencing diarrhoea associated with increased
334 exposure to baked egg and 1 reported perioral reaction associated with peanut ingestion.
335 On subsequent rechallenge, the latter patient reacted on the 3rd dose of peanut. The
336 other 7 children's reported symptoms were assessed as unrelated to the introduction of
337 the allergen into their diet and were able to maintain it in their diet.

338

339 **Productivity:**

340 The maximum daily number of OFCs performed was 25. Late cancellations due to
341 COVID infection, close contact status, other illness, work commitments (these were not
342 all formally recorded) prevented the full quota of 27 being achieved on any day. The
343 average number of challenges performed was 20 per 8 hour day under the supervision of
344 2 consultants. This is equivalent to 1.25 OFC/allergist work hour. This compares with the
345 traditional in-hospital supervision of average 3 food challenges/consultant at one time (5
346 hour) equivalent to 0.6 OFC/per allergist work hr. Review showed specific adaptations or

347 enabling resources that had been made available that made available could be retained
348 in our allergy services and others could be discontinued (Table 2).

349

350 **Impact on waiting list.**

351 60% of the overall challenges performed came from the major centre (CHI). Clinical
352 revalidation and 279 challenges reduced the total waiting list there from 502 to 172, a
353 57% reduction. 31% of CHI patients had been on the waiting list for over 2yr, 13% over
354 3yr and 0.6% over 4yr. At the end, only 14% were waiting over 2years, 4% were waiting
355 more than 3yr and there was only 1 patient waiting (for a drug challenge) more than 4yr.
356 The “long waiters” that remained had either been unable to attend or had medical or
357 behavioral requirements considered unsuitable to attend the field hospital environment.

358

359 **Staff satisfaction:**

360 Feedback from the clinical staff involved was overwhelmingly positive about the episode,
361 mentioning team building, interdisciplinary working, and the unique setting for immersive
362 training of junior doctors, with constant Consultant presence. Consultant Paediatricians
363 commented on the high volume of exposure to OFC. Feedback from other sectors was
364 also largely positive about the concept but also commented on lack of time and poor
365 consultation, being up against an imposed not agreed deadline (Appendix 2). The
366 initiative was reported to have created a strong and visible identity for participating
367 paediatric Allergy units and nationally; it was a “good news story during COVID”.

368

369 **Family satisfaction**

370 A single family opted not to avail of the offsite OFC, requesting a future, hospital based
371 option. 2 patients of CHI were reluctant to attend due to COVID concerns. 178 carers
372 completed satisfaction surveys before discharge. Patient experience was scored as
373 “excellent” by 83% of respondents with a further 12% reporting it as above average. 81%
374 were highly satisfied with ease of use of a non-hospital facility. 81% reported that the site
375 was “child friendly”. Communication was effective with 89% reporting good understanding
376 of the results of the OFC. 95% stated that their questions were answered adequately by
377 the Allergy Team (Appendix 3).

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391 **Discussion**

392 The extra demands and limitations on existing capacity imposed by the COVID pandemic
393 have challenged all clinical services to critically examine service delivery and to rapidly
394 introduce new models of care. Allergy services have redesigned approaches to
395 numerous facets of care including allergy prevention⁽¹⁰⁾ tolerance promotion⁽¹⁰⁾, clinic
396 models and training.⁽¹⁰⁻¹³⁾ All of these changes in practice were born out of necessity.
397 However, as the world embarks on the COVID vaccination phase, it is important to reflect
398 on how these novel approaches inform future thinking on service planning.

399

400 This report describes the rapid deployment of a time-limited mass OFC initiative achieved
401 through the mobilisation of trained paediatric allergy staff from across an entire country.
402 The motivation was the loss of access to daybeds due to COVID-19. The opportunity was
403 a step down COVID-19 facility lying empty. However, despite the apparent uniqueness of
404 the situation, there are clear take-home messages for all involved in provision of
405 ambulatory allergy services.

406

407 This project presents as the successful bringing together of variable clinic processes to
408 rapidly create a unified model with long lasting learning across all involved units. Specific
409 adaptations or enabling resources made available could be retained in our allergy
410 services and others could be discontinued (Table 3). The deployment of general nurses

411 and the decreased ratio of patients per consultant and per Allergy Clinical Nurse
412 Specialist were safe adaptations, with no related adverse outcomes.

413

414

415 In the hospital setting, allergy departments run with minimal day to day interaction with
416 services such as infection control, clinical engineering, anaesthesiology/resuscitation and
417 clinical risk. However, in this off site venture, safety was ensured by the early
418 engagement with these key stakeholders.

419

420 This model could act as a blueprint for transforming the limitations of multiple small
421 independent allergy services into a highly effective collective. The initiative delivered 474
422 OFC in 6 weeks by combining staff from 4 separate allergy units. Collectively these 4
423 units would normally only deliver 900 challenges across 46 weeks, using a 1:1 nurse to
424 patient ratio. The increased efficiency required a degree of short term
425 sacrifice/suspension of other aspects of clinical practice by clinical leads. Thus, this
426 initiative challenges the more traditional model of allergy practice, where OFC are
427 factored into/limited by complex schedules and shared facilities.

428

429 Oral food challenge is a safe and reliable diagnostic tool when used by an experienced
430 and trained physician. It is essential that trainees are provided with hands on experience
431 of all aspects of OFC management including anaphylaxis. A recent publication by AAAAI
432 reports that 56% of fellows reported performing 10 or less OFCs during their fellowship,
433 and 29% had done none at all⁽⁴⁾. This high volume model has the added advantage of
434 giving doctors in training an intensive fully supervised experience with almost guaranteed
435 exposure to anaphylaxis.

436

437 Lack of space is a universal limiting factor to the delivery of OFC. Allergists in the US and
438 Canada, surveyed in separate studies reported it as a major barrier ^(3,4). 54.8% of
439 Canadian allergists were in favour of creating dedicated OFC centres. This initiative
440 establishes that OFC delivery is extremely portable, requiring very little in terms of
441 specialist equipment. Even pumped oxygen is not necessarily required; although
442 available at the bedsides, the resuscitation room was supplied only with tanked oxygen.

443 Thus, OFC is a procedure that lends itself to offsite spaces, not just COVID-19 step down
444 facilities. Agreeing for a child to partake in an OFC is stressful for parents. It could be
445 anticipated that being asked to attend at an offsite venue, during a pandemic, would
446 dissuade many candidate families. In contrast, uptake was almost 100%. Families were
447 not surveyed regarding their enthusiasm specifically, but it likely reflects a trust in the
448 clinicians and in the institutions behind the initiative. Impairment of good communication
449 and supportive behaviours due to high throughput, rotating staff and social distancing had
450 been a concern. However, the post OFC survey revealed extremely high rates of
451 satisfaction with overall experience and communication. This contrasts reassuringly with
452 published qualitative data reporting parents feeling overwhelmed and in need of
453 psychology support pre and post OFC.⁽⁴⁾

454
455 It is important to note that not all patients' clinical needs can be served by a mass OFC
456 practice. Patients likely to require more individual care by nursing such as infants <2
457 years and those with extreme anxiety or autism spectrum disorder, or those who may
458 need extra support by play specialists, were all offered alternate appointments in the
459 hospital setting. Similarly, the model did not lend itself to the care of patients with known
460 specific infection control needs such as MRSA.

461
462 Only 13% of subjects were able to be fully discharged from the Allergy service, as the
463 remainder had ongoing care needs relating to existing food allergies or still needed OFC
464 with other foods. The use of combined food/multi-nut challenges⁽¹⁴⁾ could increase the
465 discharge rate.

466
467 The allergy team has been available to advise other services that are similarly limited by
468 access to high volume clinical areas and some have followed them in using the COVID-
469 19 facility for their activities. Two COVID-19 era mantras that the Allergy team adopted
470 were "Perfect is the enemy of good" and "Good enough is the new perfect". These are
471 unprecedented times with widespread curtailment of nonessential medical services
472 worldwide.

473

474 Project success is a balance between over- and under-preparation. This project was
475 delivered after 5 weeks planning because the opportunity/availability of the facility was
476 time sensitive. Post-event feedback revealed that, although overall satisfaction was high,
477 it was lower amongst non-clinical stakeholders who advocated greater inclusion and time
478 to plan. Medical supply chain economics to only receive supplies “just in time”, that might
479 work for fresh food in supermarkets, was shown in the early stages of the pandemic to
480 leave health care short of critical supplies such as PPE and even ventilators. While being
481 cautious about using metaphors of war on COVID-19, we propose that medical
482 institutions need to establish the principle of “readiness”, a military tool that enables
483 adequate planning and preparation in order to achieve rapid responses in the face of
484 sudden opportunity/need. This report shows that using the vacant COVID-19 stepdown
485 facility changed the way elective allergy care can be delivered. The retention and use of
486 facilities built to meet the challenges of COVID-19 in 2020-2022 must be considered as
487 they can be adapted to many services’ needs, while remaining available for any further
488 public health emergencies.

489

490 One of the greatest demands on international health services in the post COVID era will
491 be the delivery of semi-elective services cancelled or deferred due to COVID restrictions.
492 We have shown here how critical it is for clinicians who advocate for their patients to
493 aggressively chase any opportunity offered, as it is surely experienced clinicians and their
494 partners in frontline healthcare who are best suited to reinventing models of care.

495

496

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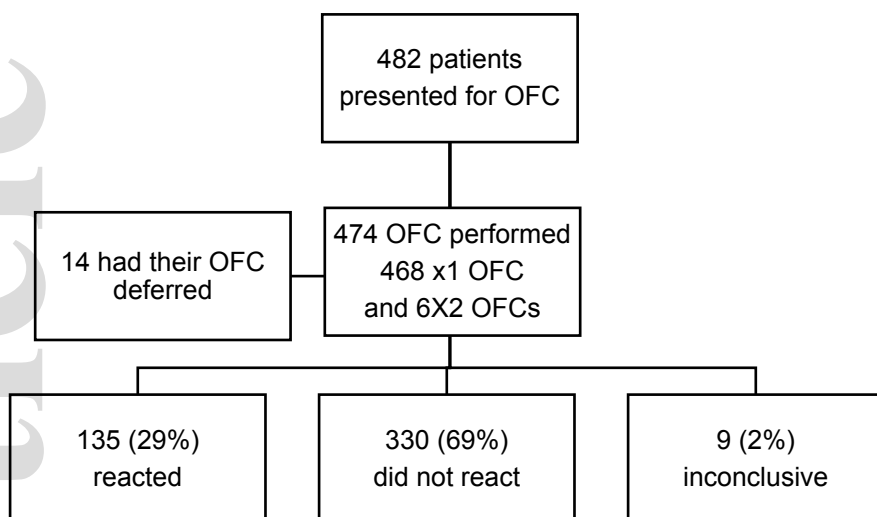
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626 **Tables and figures**

627 Figure 1. Flow diagram of oral food challenge outcomes

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Table 1 Oral food challenges performed by food type and outcome.

	No. of OFC performed (not completed)	Percentage of total OFC performed	No. of +ve OFC (% of completed OFC)
Peanut	161(3)	34%	61(39)
Tree nut	196(4)	41.35%	40 (21)
Sesame	39(1)	8.23%	21 (55)
Fish	14(1)	3%	0 (0)
Shellfish	8	1.7%	1 (12.5)
Kiwi	4	0.8%	1 (25)
Wheat	5	1%	4(80)
Milk or baked milk	12	2.5%	2 (17)
Egg or baked egg	27	5.7%	3 (11)
Pulses	4	0.8%	1 (25)
Other	4	0.8%	1 (25)
Total	474(9)		135 (29)

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	Things we need to “drop or stop”	Things we need to “grow” or pick up again
Things we started in the initiative	Anaesthesiologists on site The “2 adrenaline injections=admission” rule Starting too many challenges simultaneously Patients from multiple hospital sites on the same day	Use of multi-patient pods/rooms Use of general nurses in OFC Prefilled prescription charts Huddles and wellbeing/team support exercises Medical students as essential workers Food challenge adminc/coordinator role Dedicated professional food preparation Empowering parents to administer food challenge doses instead of nurses
Things we stopped in the initiative	1:1 specialist nurse:patient ratio for OFC Food challenge protocol variation across partner sites	Routine clinics Other professional activities

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Table 2

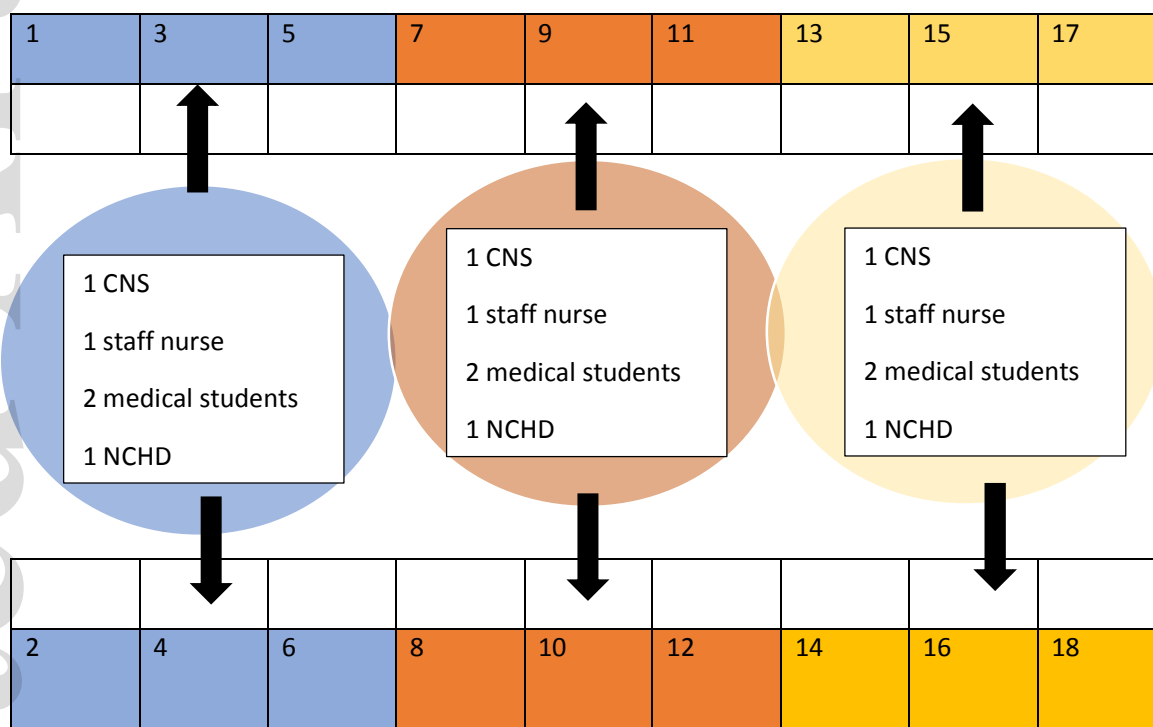
Organisational lessons for the oral food challenge initiative

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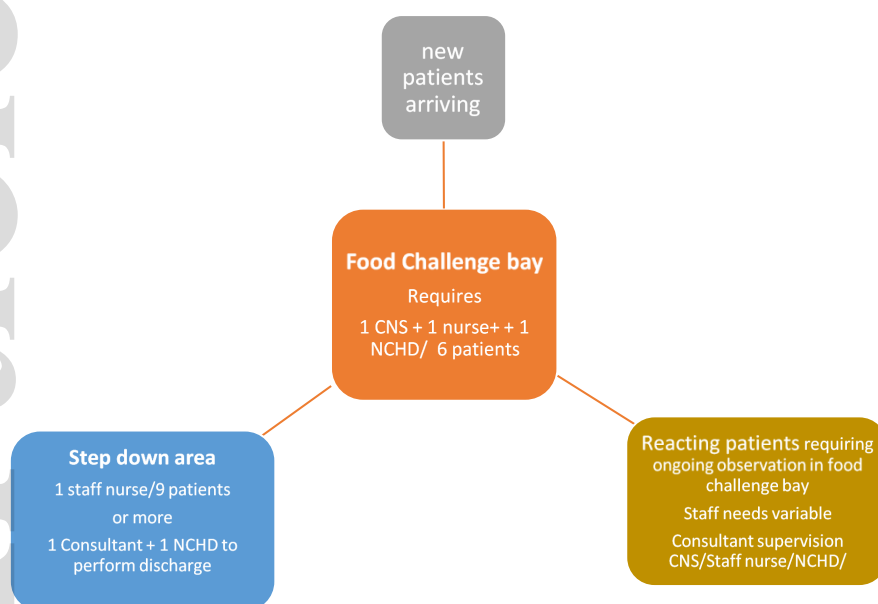
First dose of challenge (10mg protein)
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Appendix 1 Plan of bed and workforce distribution

Morning Work Plan : 3 pods of 6 new patients with similar practice in each.



Afternoon Work Plan : 3 separate models of care



Appendix 2

Samples of feedback from staff

Q1. How would you rate your overall experience of participating in the Citywest Allergy Clinic?

Rating	What was the reason for this score?
9	Novel, innovative and inspiring goal. Opportunity to develop into a team by working together
10	teamwork, patient experience, efficiency and overall can do attitude
10	I consider it quite the privilege to have been part of this venture. This experience fundamentally changed the allergy service for the better. It allowed us provide our patients with the food challenge that they needed. This not only helped the patients but also removed an emotional burden weighing down the momentum and wellbeing of the team. It completed the journey to full clinical integration of the CHI allergy team. It challenged all of us allowing for rapid growth and development as individuals and as a team. It provided a unique opportunity for training of NCHDs and students and staff nurses. It showcased CHI staff (both clinical and nonclinical) for what they are: tireless, brave, committed to high quality care.
9	The teams from all hospitals worked very well together. I went home every day feeling we achieved a lot and the knowledge that we had made a great difference to many children's and parents lives.
10	Run very efficiently
10	Excellent set up, ran v smoothly
9	innovative, well organised, positive work environment, professionally challenging
9	well organised and conducted in a safe environment
9	A smooth running clinic, very organised and nice environment
8	people worked very well together and understood each others roles and responsibilities
8	The clinic had a huge impact on waiting times/lists. Positive experience for patients and reduction in wait times for future patients.
10	well organised, good communication, everyone felt like valued member of the team
9	Efficient, patient focused and a service that had no other avenue. City west worked well for all
9	It was a great experience for staff and patients with multiple learning opportunities for all involved. There was great teamwork and a very positive attitude from all involved.

Q1. How would you rate your overall experience of participating in the Citywest Allergy Clinic?

Rating	What was the reason for this score?
9	Very well organised.
10	best working experience of my life
10	The team from CHI knew clearly what their aim was and had a plan in place to execute this
8	Efficient use of resources and involving everyone on board
8	HIPE were not involved in the initial stages of the project and we could have been better prepared for the volume of work if this had been the case.
10	This service was operated with the utmost professionalism and empathy for both children and parents.
10	Exciting, first initiative for Citywest, Removed a huge amount of patients from W/L.
9	Enjoyed being part of something positive and dynamic
7	Project very rushed and very little time to prepare
6	Planning and communication with stakeholders i.e. Materials management, Finance and operations could be improved. This is on distribution of the memorandum of understanding, budgets and process of the initiative. Consultation with nominated department staff for the NTPF initiative would mean a process is put in place per dept for remitting patients to NTPF, payment of invoices, creation of PO's and research on technical operation or finance matters etc. maybe it's time to put a formal NTPF Committee or Staffed section ?
1	No direction on the billing aspect of the charges - queries from parents
3	Insufficient notification & information provided to Procurement and Supply Chain about the clinic and the required materials required to support commission the clinic - material codes, max/min levels etc.

Appendix 3 Patient feedback

Service	Percentage
Online banking	95%
Mobile banking	92%
ATM	88%
Branch	85%
Phone banking	78%
Social media	65%
Mobile app	55%

Dear [REDACTED]

We were delighted to be invited to take part in this well thought out initiative, which undoubtedly reduced [REDACTED]'s time on the waiting list for a food challenge.

Watching the multi-disciplinary team function over the course of the morning was extremely impressive. We quickly became aware, that while all members of the team appeared to be always on the move, they were observing everyone, and there seemed to be eyes on each patient, all of the time. They quite literally appeared to have eyes in the back of their heads and were able to spot the slightest symptom before the parent sitting next to the child in question had the opportunity to become anxious. I do not know if the same level of observation could have been achieved on a day ward where children were attending for a variety of different interventions.

The process of the food challenge was a learning opportunity for us as a family. [REDACTED] is now aware of what peanut tastes like, he knows what it feels like to have a reaction, and to have adrenalin. He needs less reminders to carry his epipens, and he has become the household champion for checking allergen advice on food labels at home and in shops.

We also appreciated [REDACTED]'s transfer to CHI [REDACTED] being facilitated by Bumbleance, which we believe was another well thought out detail, avoiding the requirement of a NAS vehicle, and therefore keeping it circulation. Thanks to Dr. [REDACTED] for keeping [REDACTED] calm, and for accompanying him in the Bumbleance.

We look forward to seeing you regarding the next steps for [REDACTED].

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