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# 'Health Connections': study protocol for the development of a coproduced, community-based diet, physical activity, and healthy weight intervention for UK black and Asian adults

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## ABSTRACT

**Introduction** A limited number of diet, physical activity and weight management programmes suitable for UK black and Asian populations have been evaluated. We aim to coproduce 'Health Connections'—an ambitious new intervention to support dietary and physical activity choices, and maintaining a healthier weight, tailored to the needs of black Caribbean, black African and South Asian adults. Our existing research and public engagement work suggests that the intervention should be designed to be embedded in communities and delivered by peer educators supported by health professionals.

**Methods and analysis** The project is underpinned by a systems perspective that posits collective efficacy within communities, behaviour change theory and coproduction. Project activities will be conducted in three stages. Stage 1: semistructured interviews will be conducted with adults from diverse South Asian ethnic groups to understand their experiences, perspectives and intervention needs, adding to our existing data from black ethnic groups. We will synthesise the data, literature, available intervention resources and local practice, and develop the theoretical framework to codevelop intervention goals, programme theory and a draft logic model of change. Stage 2: a theorised list of potential intervention components, session content and mode/s of delivery will be explored in a modified Delphi exercise and workshop to achieve consensus on the intervention format. We will also develop prototype materials and a formal implementation plan. Stage 3: a description of the intervention will be documented.

**Ethics and dissemination** The study has received ethical approval from the School of Health Research Ethics Committee, Leeds Beckett University. Information on the project aims and voluntary participation is provided in the study participation information sheet. Consent will be certified by the completion and signing of a consent form prior to data collection. Dissemination for a range of stakeholders and audiences will include publications, presentations, short films and an infographic.

## STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ The study benefits from a multidisciplinary consortium which, from the outset, has included public contributors from the intervention target populations.
- ⇒ A range of coproduction activities will be employed to aid key stakeholders to actively contribute to the design and documentation of a new programme.
- ⇒ The iterative, partnership approach to intervention development is likely to reduce research waste.
- ⇒ Ensuring coproduction activities are accessible to diverse groups can be challenging; however, additional support for public contributors is provided.

## INTRODUCTION

Studies consistently show higher incidence, prevalence and mortality from cardiovascular disease (CVD) and diabetes in South Asian and black ethnic groups in the UK, compared with their white counterparts. This has led to significant inequalities in life expectancy and risk of poor outcomes from COVID-19.[1] Rates of excess abdominal fat and insulin resistance are higher at a lower body mass index (BMI) in South Asian groups compared with white ethnic groups.[2] Physical activity rates are also comparatively lower,[3] contributing to an increased risk of diabetes and CVD. Black ethnic groups in the UK have lower risk of heart disease compared with white groups; nonetheless, incidence of and mortality from hypertension and stroke, and prevalence of obesity are higher than average for these groups.[1] National Institute for Health and Care Excellence (NICE) guidelines therefore specify lower BMI thresholds for preventive action for South Asian and black ethnic groups. There are longstanding calls for tailored interventions tackling modifiable risk factors in the context of socioeconomic inequalities for underserved ethnic groups.[4] Proactively addressing this gap is made more urgent by the role of CVD and diabetes in the disproportionate impact of COVID-19 morbidity and mortality on black and Asian ethnic communities.[1]

Ethnic differences in health and health-related quality of life affect both women and men, but with disparities often greater for women than men, particularly with increasing age.[5] Interventions that appeal across genders, and different age, cultural and socioeconomic groups are essential in addressing ethnic health inequalities. The causes of ethnic patterning of health are thus multifactorial, and such adverse outcomes are potentially prevented by public health measures which are mindful of the complex interplay of deprivation, environmental, physiological, behavioural and cultural factors.[1] The development of community-based interventions, tailored for diverse ethnic groups, aligns with recommendations for strategic national and local action targeting diet, exercise and obesity. These recommendations call for consideration of wider drivers of behaviours and outcomes (eg, discrimination, deprivation, mental ill-health and stigma), and prevention as a priority for public health in tackling ethnic health inequalities.[6]

Public Health England (now Office for Health Improvement and Disparities (OHID)) led the first national resource promoting an integrated approach to reducing health inequalities.[7] Explicit consideration of ethnic health inequalities, culturally sensitive health promotion interventions, engagement with minoritised ethnic groups, tackling racism and ethnic discrimination, and local, community-based practice to inform local, regional and national action is advocated.[7] Variation in participation in existing programmes can exacerbate health inequalities,[8] and the extra costs of health inequalities to the National Health Service (NHS) are estimated at £4.8 billion per year.[9] Low uptake and retention rates result in wasted resources and reduced effectiveness.[8] Cultural tailoring of interventions is complex, but feasible (as noted below), and cost-effectiveness evidence, though limited, indicates a positive return on investment from community capacity building.[10] Our primary research,[11] part of a national programme of work commissioned by OHID, indicates ill-health prevention as key behaviour change motivation, but anticipated or experienced racism inhibited some from engaging with available programmes. Participants and practitioners agreed that current services lacked relevance and were poorly communicated. Community-based, ethnically matched and flexibly delivered services with psychosocial support were proposed as ideal. Our findings augment a limited UK evidence base (eg, of what helps and hinders healthy behaviours among minoritised ethnic groups).[12 13]

Tailored local services are being delivered, such as UP! UP! and the Croydon weight management services for black African and black Caribbean populations in London, and the Diet, Health & Activity weight management service for South Asians in Leicester, UK. With regard to the formal evidence base, however, the scoping review of European research from our OHID-commissioned work[14] identified only one lifestyle management programme targeting London-based black Africans and black Caribbeans living with type 2 diabetes (https://heal-d.org/), for which a multicentre trial will begin in August 2023. One family-based weight loss and physical activity (PA) programme among Scottish South Asians, conducted in the 2000s, was also identified. Both studies suggest feasibility and provide learning on cultural adaptation. The findings from the programme for South Asians indicate cost-effectiveness. However, modest outcomes suggest that cultural tailoring alone may not be enough. The NHS *Diabetes Prevention Programme*, targeting adults with pre-diabetes, largely recruited from general practitioner surgeries, shows lower retention and less weight loss among completers, in black and Asian ethnic groups compared with white participants, and the call has been made to identify alternative, acceptable interventions to reduce inequality.[8] Public health programmes such as *Better Health* (https://www.nhs.uk/better-health/) provide wider scope, but our public involvement in research participants indicate that it does not resonate with our target populations. Parallel with limited effectiveness evidence, there is a paucity of relevant intervention development literature, and existing research focuses on clinical populations[14] or PA only.[15] To our knowledge, the extant evidence base does not include holistic programmes or associated development studies, improving diet, PA and weight outcomes for general UK black and Asian populations, and that builds on the considerable community connectedness that has withstood the adverse impact of the COVID-19 pandemic.[16] The body of work and collective expertise of the project team provide a firm basis for us to progress to this proposed intensive, intervention development study.[17]

The study is informed by our current research and extensive public involvement in research work at all stages. The overall aim is to coproduce 'Health Connections'—an ambitious new intervention to support healthier dietary and PA choices, and maintaining a healthier weight (including weight loss for those living with overweight), tailored to the needs of black Caribbean, black African and South Asian adults. The intervention components will be further developed through coproduction; however, our research[11 14] and public involvement work conducted to develop the grant application suggested that the interventions should be embedded in communities and delivered by peer educators supported by health professionals. Further, the prior work and ongoing public contribution indicate that a culturally sensitive social marketing campaign; equitable, flexible opportunities and psychosocial support to promote favourable diet and PA choices and healthy weight; and cultural competency training to enhance partnerships between health professionals and peer educators are also desirable. The inclusion of a number of target ethnic and cultural groups is ambitious. However, increasing neighbourhood ethnic diversity and decreasing residential segregation in England and Wales,[18] the multicultural approach of our third-sector partners, commonality of some factors across ethnic groups, for example, Islamic religion, and our public contributors' concomitant interest in others' and well as their own cultural mores and values make this ambition worthy of exploration. Adaptive tailoring of components is an accepted source of complexity in complex interventions.[19] It is argued that the form of an intervention can be flexible if the key functions of the programme theory are maintained.[20]

The study aim will be achieved through three stages and six objectives. Stage 1, coproduction planning: (1) consortium consolidation; (2) understanding experiences, perspectives and needs of the target populations; (3) codevelopment of intervention goals and programme theory. Stage 2, codesigning and creating: (4) generate ideas about intervention features; (5) make decisions on the intervention content, format and delivery. Stage 3, documentation and evaluation planning: (6) document an intervention description.

## METHODS AND ANALYSIS

Mixed methods will be used to achieve the aims and objectives. The project started in November 2022 and activities will take place over 18 months (ending April 2024). We have formed a consortium comprising a public involvement in research (PIR) group (see the Patient and public involvement section below); third sector, practitioner, local and national policy partners; and researchers, who have committed to coproducing an affordable, value-focused and needs-based intervention of greater accessibility and effectiveness for the target populations than current offers. Context is an essential consideration, and multiple deprivation is concentrated geographically, including in many northern UK areas. National and regional perspectives of our participants, partners and collaborators will be vital. However, we also have the opportunity with the Leeds-based partnership within the consortium for linking with the ongoing, pioneering Asset Based Community Development (ABCD) Programme.[21] This will facilitate learning and a community capacity case study to draw on and build sustainability.

### Development approach

Informed by a typology for developing complex interventions, a combined 'partnership', and 'evidence and theory' approach (O'Cathain *et al*, p6–7),[22] supplemented by Netto *et al*'s five principles for developing interventions in minoritised ethnic communities (which includes accommodating varying degrees of cultural identification) (Netto *et al*, p254),[23] will be our intervention development framework.

*Partnership:* a participatory coproduction model has been adopted, where all subgroups of the consortium (researchers, the public, third-sector organisations, policymakers and practitioners) are working together from the outset.

*Evidence and theory*: the project activities are underpinned by the transactional element of socioecological theory[24] and draws on the ABCD Programme,[21] as noted above. The concept of *transactional power* posits that in targeting collective efficacy (norms and networks that enable collective action[25]), interventions that lead to a process by which people themselves are changed also achieve changes in systems.[24] To conceptualise the required individual-level change, we will also examine the value of the behaviour change wheel (BCW), with associated capability, opportunity and motivation model for influences on behaviour.[26] The BCW and a systems-based framework of factors influencing diet and PA in minoritised ethnic groups[27] provide a pragmatic bridge between the heuristic socioecological theory and establishing what needs to change. The theoretical choices outlined are our starting point for identifying target behaviours and intervention function. The concepts will aid understanding of how the components will work together to produce outputs and outcomes (ie, the initial programme theory), subject to the refinement of both the intervention and theory.

### Activities and planned outputs

#### Stage 1: coproduction planning

#### *Consortium consolidation*

A kick-off meeting was held in February 2023 to solidify our consortium's common vision, values and guiding principles. Throughout the project consortium, coproduction meetings will take place approximately every 2 months, and members of the core research team (MJM, KJ, TAA) will also provide support meetings for the PIR group as required.

#### *Understanding experiences, perspectives and needs of the target populations*

We will undertake semistructured interviews with UK women and men and from South Asian groups (Indian, Pakistani, Bangladeshi and Sri Lankan), to supplement our existing data from a qualitative study among black ethnic groups.[11] All materials used in addressing this objective (participant information sheet (PIS), consent form, semistructured interview guides, sociodemographic questionnaire) were coproduced within the consortium. Specific group discussions were held with the PIR group to ensure their views were prioritised.

#### Sampling and sample size

Purposive sampling will ensure a diverse range of voices in the sample regarding age, gender, socioeconomic circumstances, religion/culture (eg, Muslim, Sikh, Hindu, Christian), language (eg, Bangla, Gujarati, Hindi, Urdu, Punjabi/Gurmukhi, Sinhalese) and migration status. The sampling frame will include at least four participants (two men and two women) in each cultural subgroup to include a younger adult (aged <50 years) and an older adult (aged >50 years), providing a maximum sample size of around 25–30 participants. To date, participants have identified as male or female, but there is scope to increase the sample size to also include other genders.

### Recruitment

To recruit research participants, we are drawing on the consortium's wider community links, prioritising oral communication and face-to-face meetings where feasible, but also through social and other media. This reflects the multipronged approach to communication, awareness raising and recruitment required when engaging with least-heard communities.[28] Recruitment will continue iteratively until proposed numbers in the above categories have been reached. To ensure inclusion across diverse language and literacy needs, project overviews are provided in video and voiced over PowerPoint formats in Hindi and Urdu, circulated via social media and community links. Similarly, the PIS (see ethical procedures below) is being read out in participants' preferred language, as required.

### Data collection

A semistructured interview guide has been created based on the goals of the project, our prior work, other literature and input from the consortium, including the PIR group (as noted above). Face-to-face interviews at community hubs will be given priority; however, remote techniques (phone, video conferencing) will be employed in line with participant preferences, which will also enhance geographical reach. Data collection commenced in March 2023. Interviews will be conducted by KJ (who is of Indian ethnicity) in English or Hindi. For other language preferences, we have diverse South Asian language skills within the consortium to draw on for interviewing, translation and back-translation. We have allocated funds within the budget to outsource interviewers/translation if a language preference is not covered in the consortium (eg, Bengali). Participants are also completing a brief questionnaire to collect sociodemographic data (age, gender, ethnic group, place of birth, socioeconomic circumstances) prior to commencing the interviews, with language and literacy support provided by interviewers as above.

### Data analysis

Inductive thematic analysis will be aided by verbatim transcription of the interview recordings. The analytical process will include familiarisation with the data; generating initial codes; identifying initial themes; reviewing and developing themes; defining, naming and refining the themes; and producing the report.[29] The data collected will provide diverse views on the phenomenon of interest, in turn aid the theoretical generalisability of the findings. Based on progress to date, the achieved sample size may be sufficient to reach data saturation,[30] although this cannot be guaranteed. Consistency of coding across cases will be aided through use of NVivo V.12 Pro software.[31] Saturation will be explored by iterative analysis alongside data collection, and charting the anonymised participants and themes generated in Microsoft Excel. Data extracts will be labelled with participant characteristics from the questionnaire data (age, gender, ethnicity, place of birth, socioeconomic circumstances) which will aid exploring data saturation between participant subgroups. Participants who have consented to further contact will have the opportunity to comment on their interview transcript and the interim analyses.

*Output*: a summary report of the interview findings to support codevelopment of intervention goals and programme theory.

### *Codevelopment of intervention goals and programme theory*

*Data synthesis:* four sources of data will be synthesised in narrative summaries for each of the four elements and an overall summary. In this pragmatic approach, summaries will focus on intervention needs of our target populations, and the strengths and limitations of behaviour change approaches relevant to stated needs. To aid accessibility for non-academics, video summaries will be produced by the PIR group, supported by the core research team. This process has already begun with PIR group meetings held to try out activities (eg, indoor cricket) and resources (eg, recipe videos) and their feedback documented. An interactive database is also being developed so that consortium members can access more detail and/or individual items (such as papers or websites) within the synthesis.

The data sources are as follow:

(1) Data from the previously mentioned qualitative study (Maynard *et al*,[11] under review); (2) findings generated from the current qualitative interviews (ie, objective 2 activities); (3) existing literature: (a) the previously mentioned scoping review (Maynard *et al*,[14] under review); (b) evidence of effective evidence-based behaviour techniques, taxonomies of reporting and describing behaviour change techniques, and 'best bets' for links between behaviour change and mechanisms of action[32] (p73); relevant social marketing[33] and cultural competency interventions[34]; (c) national diet, PA, obesity, health inequalities-related community engagement and health promotion guidelines[35–37]; and (4) available intervention components, resources and local practice that are evidence based and/or are known to be popular with the target communities, and can potentially be adopted/adapted (with permission), in addition to developing our own novel components and resources.

### Theory mapping

The narrative summaries and other materials will be circulated within the consortium. Electronic feedback and input from the coproduction meeting in month 10 of the project will be used to define target behaviours and behaviour change contexts, mapped to our theoretical framework (see above) and real-world issues such as cost and delivery.

*Output*: a draft logic model of change.

## Stage 2: codesigning and creating

### *Generate ideas about intervention features*

Informed by the draft logic model, we will refine our collective ideas, through electronic sharing and the coproduction meeting in month 10 of the project, to produce a list of possible components, their content and delivery, consistent with the underpinning theory.

*Output*: a theorised list of potential components, content and mode/s of delivery.

#### *Make decisions on the intervention content, format and delivery*

Informed by the output from the previous objective, two rounds of an online modified Delphi process.[38] The first will gain consensus on the components, content, mode of delivery and length of programme, and the second on the process and outcome evaluation items and methods for the future research phases. The findings will be critiqued by the consortium at an interactive 1-day workshop, and the intervention programme will be decided. The specific methods used in the workshop will be decided collaboratively at the prior coproduction meeting and informed by the results of the Delphi process. Putting into practice our equitable partnership and guidance for good coproduction,[39] likely features of the workshop include being held in person with the workshop goals and focus circulated in advance. Further, a range of activities for ensuring active participation will be considered (eg, round table and smaller breakout discussions; flip chart/post-it notes using words and/or sketching), and breaks and time for informal interaction and networking built into the agenda. The core research team and the PIR group lead/members may share facilitator and notetaker roles, with the didactic elements of the workshop kept to a minimum (eg, scene setting using scenarios generated from the data synthesis). Language skills within the consortium will ensure there are no language barriers to participation.

Four weeks will then be spent by the research team making a small number of prototype intervention materials (eg, recipe cards; PA video excerpts). Informal acceptability and feasibility testing of the intervention plan and prototypes will be conducted at an event in a Leeds community hub. Approximately 60 potential future beneficiaries/users of the developed programme and consortium members will informally assess the intervention plan for acceptability and feasibility, via observed interaction with the materials and brief evaluation questionnaires. Necessary refinement and (as recommended at this stage[22]) a formal implementation plan will be codesigned to consolidate ideas on the organisations or communities that will adopt and maintain the intervention.[40]

*Outputs*: (1) a formal implementation plan; (2) decisions regarding the content, format and delivery of the intervention; (3) prototype materials.

### Stage 3: documentation and evaluation planning

#### *Document an intervention description*

A description of the intervention will be documented to include programme timetable, length and follow-up, integration of different elements; a curriculum plan for the cultural competency training; and the design and content of the intervention components. A formal feasibility and acceptability study and pilot trial plan will also be devised, incorporating a recruitment plan, outcomes and process measures, and measurement tools.

*Output*: a codesigned evaluation strategy and an intervention handbook.

### Patient and public involvement

Involvement in the development of the grant application of 21 South Asian and black ethnic women and men in our PIR group indicated the type of programmes they would engage with or recommend. They stressed the importance of traditional eating, interest in activities such as dance or walking, and weight loss as a natural consequence of healthful habits; the need for low-cost and flexible programme delivery; providers with shared lived experience, and community rather than medical settings. Together with our exploratory research, these PIR activities have contributed fundamentally to the development of the proposal and the coproduction principles and practice of the project. Eight members of our wider PIR group have continued working with us as a project-specific PIR group, ensuring that all activities are person centred and likely to make tangible differences to people's lives. The members are from the target black and Asian ethnic groups and live in Leeds, facilitating in-person activities and the local community capacity case study noted above. The PIR group is an integral part of the bimonthly coproduction meetings, and meetings specifically for PIR group support are also provided by the core research team as required. In addition, PIR members have access to opportunities to be involved in conducting the research (eg, interviewing participants, contributing to data analysis and to dissemination of the findings), for which training will be provided.

## ETHICS AND DISSEMINATION

Ethical approval has been obtained through the School of Health Research Ethics Committee, Leeds Beckett University (ref: 105518;116483). Participants receive a PIS before deciding whether to participate, and their consent is certified by signing a consent form. Interviews are being recorded, with consent. Participants have the option to not answer questions and to end the interview without providing a reason. Risk to participants is not anticipated to exceed that of day-to-day living. However, it is possible that thinking or talking about behaviour or attitudes related to sensitive issues, such as emotional eating, experiences with being overweight or obese, illness or stigma, and a lack of social or other support, may cause uncomfortable feelings and/or the need to talk about them further. The PIS and verbal instructions also direct participants to additional sources of culturally appropriate information and support, and participants will be urged to consult their general practitioner or other healthcare providers, if they have any questions that cannot be answered by general information. There is no direct benefit to individuals in taking part; however, the involvement of volunteers is essential for the study to take place; therefore, all participants will contribute to the outputs from the study and to the potential long-term benefits of those outputs. All participants will receive a gift at a level and nature (£25 voucher redeemable at a range of retail outlets) that is not likely to coerce subjects into taking part but will acknowledge participants' time and contribution of their views.

Names and contact details of prospective participants collected during the study will only be used for the purpose of recruitment, to facilitate the logistic organisation of the interviews and to assign unique ID numbers. This information will be kept in an electronic database on a password-protected space on the university server, separately from the study data to ensure confidentiality, only accessible by the core research team, and will be deleted on completion of the study. Once respondents have been recruited and are participating, they will be assigned a unique ID number, and no identifying information (names, addresses, date of birth) is requested as part of the data subsequently collected (ie, from questionnaires and interviews). This will ensure that the data provided will be anonymised; however, the research team will be able to link questionnaire responses and interview data through the ID number, for research purposes and to support requests to withdraw their data after they have been provided to the study (within the limits stated on the PIS). Data storage will be in accordance with the host institution data protection policy and in line with the UK General Data Protection Regulation.[41 41] Anonymity will be maintained in the project dissemination, including anonymising the source and content of direct quotes from the interviews.

Project dissemination will include sharing the intervention manual, describing the intervention structure and components, how it should be delivered, exemplar resources and the evaluation plan. Progression to the next phase will be indicated by success in producing these outputs, the coproduced logic model of change and in achieving the consensus required for the production of the outputs.[22] The project findings will also be shared in formats suitable for a range of stakeholders and audiences such as academic publications, policy briefings, academic and non-academic presentations, and other methods suitable for the general public such as a short film or infographic.

## DISCUSSION

There is an ongoing lack of interventions that resonate with UK black and Asian ethnic groups and support them in making healthier dietary and PA choices and maintaining a healthier weight. Cultural adaptation of programmes is feasible, but current evidence suggests this may not be enough. We therefore propose developing an ambitious multicomponent intervention, embedded in communities and intended to be delivered by peer educators, supported by health professionals. This will proactively contribute to addressing a significant gap in the evidence base. Our driving principle is partnership, within a participatory coproduction model.

Assuming success of this developmental phase, the next phase will be formal, observational feasibility and acceptability testing, linked to a pilot cluster-randomised trial. Mixed-methods process evaluation, intermediate outcomes and cost-effectiveness evaluation will aid insight into success or failure and/or unexpected consequences.[17] Evidence of feasibility and effectiveness will lead to further refinement, optimisation of intervention efficiency, an implementation, upscaling and sustainability strategy based on Reach, Effectiveness, Adoption, Implementation and Maintenance principles.[42]

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**Collaborators** The consortium is formed of the core team: Maria J Maynard (principal investigator), Kshama Joshi, Louisa Ells (Leeds Beckett University) and Tanefa A Apekey (University of Sheffield); public involvement in research group; community, policy and practice partners: Nicola Corrigan (OHID), Arfan Hanif and Sophie Hailwood (Touchstone), Claude Hendrickson (Leeds West Indian Centre; public involvement lead), Alosh Jose (CricketQube), Raheem Mohammad and Shanaz Gul (Hamara Healthy Living Centre), Abimbola Ojo (Kent County Council), Hannah Robertshaw and Adie Nivison (Yorkshire Dance), Jayne Rodgers (independent consultant), Emma Strachan (Leeds City Council), Sonia Woodcock (Leeds ACTs!); academic collaborators: Pooja Dhir, Lisa Harkry, Sajida Manzoor, Alexandra Potts, Jane South (Leeds Beckett University), Sufyan Dogra (University of Bradford), Bertha Ochieng (De Montford University).

**Contributors** MJM and KJ jointly drafted the original manuscript. MJM, TAA and LJE designed the Health Connections protocol. MJM, KJ, TAA and LJE reviewed and edited the manuscript and approved the final version. All members of the Health Connections consortium contributed to the aims and study design for the project proposal.

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**Competing interests** MJM is a trustee of Yorkshire Dance. LJE is specialist academic advisor to the Office of Health Improvement and Disparities.

**Patient and public involvement** Patients and/or the public were involved in the design, or conduct, or reporting, or dissemination plans of this research. Refer to the Methods section for further details.

**Patient consent for publication** Not required.

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