Accommodation-based interventions for individuals experiencing, or at risk of experiencing, homelessness: a network meta-analysis

Ciara Keenan, Sarah Miller, Jennifer Hanratty

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Title of the review

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Background

Homelessness is a pervasive and intractable issue which may require a radical solution. The UK government has been radical with a pledge to eradicate rough sleeping in England by 2027 (Ministry of Housing, Communities and Local Government, 2018), but with a failing housing market and a lack of social housing many experts have questioned how this is possible in the timeframe.

In the UK, the housing first intervention, which falls under the umbrella of an accommodation-based approach, has a ringfenced fund of £28 million allocated by the Secretary of State for Housing, Communities and Local Government. However, the effectiveness of 'housing first' is disputed across three randomised controlled trials for outcomes related to health (O'Campo et al., 2016), income (Poremski et al., 2016) and substance abuse (Kirst, Zerger, Misir, Hwang & Stergiopoulos, 2015); while results from randomised controlled trials on the effectiveness of other types of accommodation-based approaches are conflicting and vulnerable to biases associated with small sample sizes and poor study quality (Munthe-Kaas et al., 2018).

The aim of this systematic review and network meta-analysis is to establish the effectiveness of all accommodation-based approaches though a robust and rigorous synthesis of the available literature. Through this understanding of what works, for whom, and why, some of the detrimental effects of experiencing a life of homelessness may be alleviated.

Policy relevance

Globally homelessness is rising and there is a significant need to identify and combine all relevant interventions which aim to reduce homelessness. To ensure that policymakers avail of the most robust and rigorous evidence to date a Systematic Review and network meta-analysis of the literature around accommodation-based interventions is required.

Objectives

1. What is the relative effect of accommodation-based interventions on outcomes for individuals experiencing or at risk of experiencing homelessness? i.e. which intervention (Housing First, hostels, shelters, and supported housing) is most/least effective compared to other interventions and compared to business as usual (passive control)?

2. Who do accommodation-based interventions work best for?
    a. Young people/older adults?
    b. Males/Females?
    c. Other sub groups or populations?
3. What implementation and process factors act as barriers or facilitators to intervention delivery?
4. Is implementation fidelity related to the effectiveness of the intervention?

Existing reviews

This systematic review will be based on evidence already identified in two existing evidence and gap maps (EGMs) commissioned by the Centre for Homelessness Impact (CHI) and built by White, Saran, Teixeira, Fitzpatrick and Portas (2018). The EGMs present studies on the effectiveness and implementation of interventions aimed at people experiencing, or at risk of experiencing, homelessness.

The EGMs identified various systematic reviews which assess the effectiveness of interventions like housing first (Beaudoin, 2016; Woodhall-Melnik & Dunn, 2016) and supported housing (Burgoyne, 2014; Nelson, Aubry & Lafrance, 2007; Richter & Hoffmann, 2017), and interventions which were conducted in hostel and shelter settings (Haskett, Loehman & Burkhart, 2016; Hudson, Flemming, Shulman & Candy, 2016). However, a network meta-analysis of accommodation-based interventions for a homeless population does not exist.

Various systematic reviews which synthesise accommodation-based interventions more generally, differ from the proposed review in several ways:

1. Differences in population

Bassuk, DeCandia, Tsertsvadze, and Richard (2014) systematically reviewed and narratively reported the findings of six studies which looked at the effectiveness of housing interventions and housing combined with service interventions. The interventions included Housing First, rapid rehousing, vouchers, subsidies, emergency shelter, transitional housing, and permanent supportive housing. However, authors limited the population to families who were experiencing homelessness and so any final conclusions on the efficacy of accommodation-based interventions on the wider population of individuals experiencing homelessness are impossible to reach.

2. Differences in outcomes of interest

Fitzpatrick-Lewis and colleagues (2011) conducted a rapid systematic review on the effectiveness of interventions to improve the health and housing status of individuals experiencing homeless. Of the 84 included studies, interventions included everything from housing first to the Healthy Living Program. Only those studies published between January

2004 and December 2009 were included in this review and so the current review will be more current and much broader in scope. Additionally, the primary purpose of the review was to identify literature which improved health outcomes for those experiencing homelessness and so other important outcomes were not included.

A title registration form has been submitted to the Campbell Collaboration by Mathew and colleagues (2018) which looks at how various interventions impact the physical and mental health of homeless individuals alongside other social outcomes. One objective listed in the title registration form is similar to the scope of the current review. Authors will assess "What are the effects of housing models (i.e. Housing First) on the health outcomes of homeless and vulnerably housed adults compared to usual or no housing?". However, the current review will have a wider scope by including additional outcomes across a wider population.

A recent Campbell Collaboration review by Munthe-Kaas, Berg and Blaasvær (2018) assessed the effectiveness of both housing and case management programmes for people experiencing, or at risk of experiencing homelessness. The main outcomes of interest to the authors were reduction in homelessness and housing stability. Authors searched the literature until January 2016 and uncovered 43 randomised controlled trials meeting the predetermined inclusion criteria. Authors did not include qualitative research or extract data related to the cost of the interventions, which are outcomes of interest to this proposed review.

3. Differences in analytic methods

Finally, a recent review by the what works centre for wellbeing (Chambers et al., 2018) included 90 studies which included clusters of housing first (n=47), supported housing (n=12), recovery housing (n=10), housing interventions for ex-prisoners (n=7), housing interventions for vulnerable youth (n=3) and 'other' complex interventions targeted at those with poor mental health (n=11). Authors presented a comprehensive search strategy of both commercial and grey literature, however, due to resource constraints were unable to conduct independent screening of the potential studies and therefore risk selection bias in the review. Additionally, only studies published after 2005 were included in this review and so the current review will be broader in scope. Finally, the authors objective was to create a conceptual pathway and evidence map between housing and wellbeing and so the results were not meta-analysed but described narratively instead.

Network meta-analysis

A traditional pairwise meta-analysis allows a researcher to compare the evidence base of intervention A against the evidence base for intervention B to inform decisions on whether intervention A or B (or no treatment if compared to a control condition) is most effective for the population, condition, or setting of interest. These meta-analyses provide direct comparisons between two different interventions.

When two or more intervention types exist, as in the case of accommodation-based approaches, researchers can utilise all the available direct comparisons between intervention

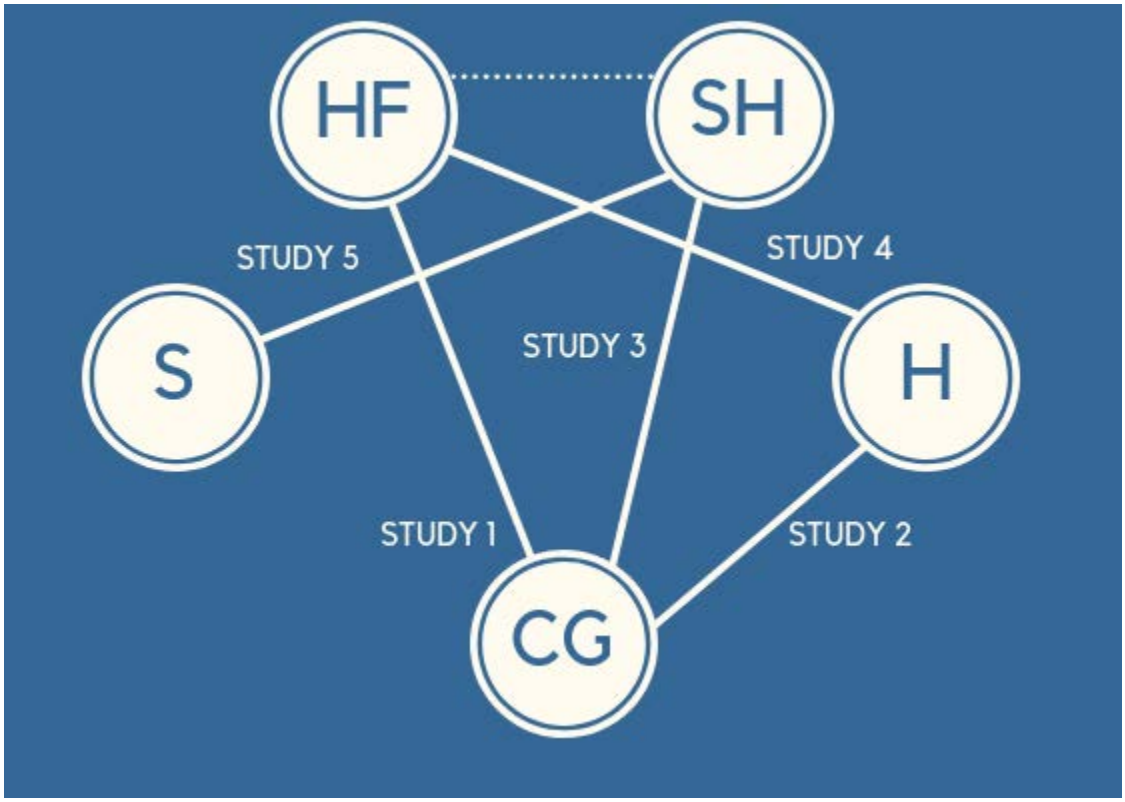
options and use this data to calculate indirect comparisons (see example below). This not only allows researchers to assess whether the combination of multiple accommodation-based approaches is more effective than using one single approach, but also by this combination of both direct and indirect comparison data, researchers are providing a much stronger and more robust evidence- base to decision makers.

To answer the research question outlined above, network MA allows analysis of data collected at various time points that compare accommodation-based approaches like housing first, shelters, hostels, or supported housing against either a control group or through head to head comparisons.

To illustrate how network MA helps to answer the question on effectiveness of accommodation-based interventions to reduce homelessness, we will use five fictional randomised control trials uncovered through a thorough systematic review of the literature.

1. Study 1 compares housing first (labelled HF) to a control group (labelled CG)
2. Study 2 compares hostels (labelled H) to a control group
3. Study 3 three compares supported housing (labelled SH) to control group
4. Study 4 four compares hostels to housing first
5. Study 5 compares shelters (labelled S) to supported housing

The example NMA would look like this:



The network MA can use all the information available across the five studies to provide an understanding of the effectiveness of the approaches. Each line in the diagram is a direct comparison between two interventions and so effect sizes will be available.

However, as shown in the example above, the dashed line between housing first and supported housing is illustrative of how an indirect comparison (effect size) could be calculated using the information from Study 1 (housing first compared to control) and Study 3 (supported housing compared to control). This indirect effect comparing housing first and supported housing can be calculated because the two interventions of interest have a common comparator (in this case control). If, when the review is updated, a new RCT that compares housing first and supported housing is located, then this direct effect will be pooled with the earlier indirect effect to create what becomes known as a network treatment effect.

Finally, through applying network MA to the research question, the five fictional trials alongside the indirect comparison now create the network of evidence on accommodation-based approaches. These approaches are ranked to provide robust conclusions on which approaches (or combinations of approaches) work best to reduce homelessness. (Salanti, Ades & Ioannidis, 2011).

Intervention

Interventions aimed at reducing homelessness can be traced as far back as 1824, where the UK government's response to the congregation of people in urban areas was the Vagrancy Act (1824). This history, coupled with the complexity of homelessness, has led to a diverse range of accommodation-based interventions. Due to the anticipated range and diversity of these interventions an extensive list of all possible types will not be listed here. However, the review team will attempt to categorise the intervention into one of the following major classifications:

Housing First models

Housing First (HF) interventions offer housing to homeless individuals with minimal obligation or preconditions being placed upon the participant. HF provides safe and stable housing to all individuals, regardless of criminal background, mental instability, substance abuse, or income. HF programmes share some common themes: (i) the participant is provided housing immediately, without conditions, (ii) decisions around the location of the home and the services received are made by the client, (iii) support and services to aid the individual recovery are provided after stabilisation, (iv) social integration with local community and meaningful engagement with positive activities is encouraged.

HF is based on the principle that housing should be made available in the first instance and preconditions such as sobriety and involvement in treatment programmes are unnecessary barriers placed upon homeless individuals. Through the removal of these common obstacles, it is believed that the individual has a better chance of achieving stabilisation in appropriate housing and feel more willing or able to accept treatment. If this is achieved, services aimed

to address their more complex needs can be introduced, usually through community-based support.

Hostels

Hostels provide homelessness accommodation for both short-term and long-term housing needs. They are open 24 hours per day. Hostels are most often funded by housing benefit. Individuals usually need to be referred by their local council or other agency. Many hostels charge additional fees directly to the individual for services such as laundry, food, or heat. Homeless people do not always sleep in homeless hostels and in times of emergency or adverse weather conditions, will self-fund a stay in a private hostel aimed towards backpackers or students.

Homeless hostels have rules about the individuals who stay there, but they may include homeless individuals, homeless families, homeless couples, and homeless individuals with pets. While most hostels will offer beds to either gender, some are specifically for homeless males and others for homeless females. Individuals who do not conform to binary classification of gender may find it difficult to be housed in hostels that are gender-specific in their intake. Some hostels will accommodate young people exclusively. Sleeping arrangements are variable with some offering dormitory style sleeping alongside communal kitchen, living, and shower areas while others have bedsit flats.

The type of support offered by a homeless hostel varies, often being determined by the needs of the individuals who stay there. For example, in hostel accommodation females who have suffered domestic abuse require different services and support than males who have specific mental illness. However, some common types of support offered in homeless hostels include a support plan to move to more stable accommodation, practical help with form filling and obtaining necessary governmental documents, or treatment for substance abuse issues.

Shelters

Homeless shelters are a basic form of temporary accommodation where a bed is provided in a shared space overnight. One of the key features of a homeless shelter is that it is transitional and an option for those homeless who are not yet eligible for more stable accommodation. Shelters are not usually seen as stable forms of accommodation as the individual must vacate the space during daytime hours with their belongings. Homeless shelters often place additional requirements on potential users including night time curfews. Additional services that may or may not be provided by the homeless shelter are warm meals for dinner and breakfast or support from volunteers who help individuals make connections to other services.

Day shelters for homeless individuals act as a drop-in centre, often aimed towards those homeless with additional needs such as substance abuse, or mental illness. Services may include access to case workers, meals, access to laundry facilities, or support groups. The obvious difference between night and day shelters is that a day shelter will not offer a bed to the individuals who use the services. Some criticisms of homeless shelters relate to

overcrowding, physical altercations, theft, substance abuse, and unhygienic sleeping conditions.

Supported housing

Supported housing is an extremely complex intervention type. To be categorised as supported housing, the intervention will combine housing with additional supportive service/s as an integrated package. The housing offered can be permanent or temporary; non-abstinent contingent or abstinent-contingent; staffed group homes, community based or in a private unit; and the subsidies towards rent also vary.

Supportive services will be offered directly to the individual or through referrals to the relevant body. Supportive services might include those to help with mental health issues, substance misuse, those interventions which increase access to health services, support to continue education or find employment, help with accessing benefits, or those services which focus on social aspects of the individual's life such as positive interactions with society, or community engagement.

Examples of interventions which use supported housing are the Pathways to Housing supported housing programme (Tsemberis & Eisenberg, 2000) and the US Department of Housing and Urban Development (HUD) and the US Department of Veterans Affairs (VA) Supported Housing (O'connell, Kasprow & Rosenheck, 2008) programme.

The primary objective of all supported housing interventions is to provide people with the stability of housing (even if only for the short-term) alongside the service and support they require to continue life independently without the risk of future homelessness.

Population

This systematic review on access to HSC services will focus on all individuals who are currently experiencing, or at risk of experiencing homelessness irrespective of age or gender. The included studies will include populations from high-income countries. Homelessness is defined as those individuals who are sleeping 'rough' (sometimes defined as street homeless), those in temporary accommodation (such as shelters and hostels), those in insecure accommodation (such as those facing eviction or in abusive or unsafe environments), and those in inadequate accommodation (environments which are unhygienic and/or overcrowded).

Outcomes

The primary outcome will be homelessness.

This review will primarily address how interventions can reduce homelessness for those individuals experiencing, or at risk of experiencing, homelessness.

We have not included the secondary outcomes at this title registration stage. Secondary outcomes will be chosen on the basis of consultation with a range of stakeholders including academic experts and practitioners. This is to ensure that the outcomes chosen for this review will reflect the priorities and concerns of stakeholders and allow for genuine co-production so that the review can be shaped by those who will use the evidence in practice.

Study designs

Only those studies that use a randomised control trial (RCT) design will be eligible. To be included, two or more comparison interventions, possibly a control condition, must be assigned randomly to participants.
Control conditions can include alternative treatment/placebo, no treatment or waitlist.

We will include qualitative studies only if they are conducted as part of a randomised controlled effectiveness study, for example a process evaluation of an RCT.

References

Bassuk, E. L., DeCandia, C. J., Tsertsvadze, A., & Richard, M. K. (2014). The effectiveness of housing interventions and housing and service interventions on ending family homelessness: A systematic review. *American Journal of Orthopsychiatry*, 84(5), 457. https://doi.org/10.1037/ort0000020

Beaudoin, I. (2016). Efficacité de l'approche «logement d'abord»: une revue systématique. Drogues, *santé et société*, 14(2), 43-69. https://doi.org/10.7202/1037732ar

Burgoyne, J. (2014). Mental health and the settings of housing support–a systematic review and conceptual model. *Housing, Care and Support*, 17(1), 26-40. https://doi.org/10.1108/hcs-10-2013-0018

Chambers, D., Cantrell, A., Preston, L., Peasgood, T., Paisley, S., & Clowes, M. (2018). *Systematic review of the evidence on housing interventions for 'housing-vulnerable' adults and its relationship to wellbeing.* Report. What Works Centre for Wellbeing. University of Sheffield. UK.

Fitzpatrick-Lewis, D., Ganann, R., Krishnaratne, S., Ciliska, D., Kouyoumdjian, F., & Hwang, S. W. (2011). Effectiveness of interventions to improve the health and housing status of homeless people: a rapid systematic review. *BMC Public Health*, 11(1), 638. https://doi.org/10.1186/1471-2458-11-638

Haskett, M. E., Loehman, J., & Burkhart, K. (2016). Parenting interventions in shelter settings: A qualitative systematic review of the literature. *Child & Family Social Work*, 21(3), 272-282. https://doi.org/10.1111/cfs.12147

Hudson, B. F., Flemming, K., Shulman, C., & Candy, B. (2016). Challenges to access and provision of palliative care for people who are homeless: a systematic review of qualitative research. *BMC palliative care*, 15(1), 96. https://doi.org/10.1186/s12904-016-0168-6

Kirst Maritt, Zerger Suzanne, Misir Vachan, Hwang Stephen, and Stergiopoulos Vicky. (2015). The impact of a Housing First randomized controlled trial on substance use problems among homeless individuals with mental illness. *Drug and Alcohol Dependence*, 146, pp.24-29.

Mathew, C., Mendonca, O., Abdalla, T., Stergiopoulos, V., Bloch, G., Brcic, V., Andermann, A., Aubry, T., Ponka, D., Kendall, C., Salvalaggio, G., Mott, S., Kpade, V., Lalonde, C., Hannigan, T., Shoemaker, E., Mayhew, A., Thavorn, K., Tugwell, P., & Pottie, K. Interventions to improve physical health, mental health, and social outcomes for homeless and vulnerably housed populations. *Campbell Systematic Reviews*, 18.

Ministry of Housing, Communities and Local Government (2018). *Rough Sleeping Strategy*. London: Her Majesty's Stationery Office, pp.1-77.

Munthe-Kaas, H. M., Berg, R. C., & Blaasvær, N. (2018). Effectiveness of interventions to reduce homelessness. *Campbell Systematic Reviews*, 14. https://doi.org/10.4073/csr.2018.3

Nelson, G., Aubry, T., & Lafrance, A. (2007). A review of the literature on the effectiveness of housing and support, assertive community treatment, and intensive case management interventions for persons with mental illness who have been homeless. *American Journal of orthopsychiatry*, 77(3), 350-361. https://doi.org/10.1037/0002-9432.77.3.350

O'Campo P, Stergiopoulos V, Nir P, Levy M, Misir V, Chum A, Arbach B, Nisenbaum R, To M J, and Hwang S W. (2016). How did a Housing First intervention improve health and social outcomes among homeless adults with mental illness in Toronto? Two-year outcomes from a randomised trial. *BMJ open*, 6, pp.e010581.

O'connell, M. J., Kasprow, W., & Rosenheck, R. A. (2008). Rates and risk factors for homelessness after successful housing in a sample of formerly homeless veterans. *Psychiatric services*, 59(3), 268-275. https://doi.org/10.1176/appi.ps.59.3.268

Poremski D, Stergiopoulos V, Braithwaite E, Distasio J, Nisenbaum R, and Latimer E. (2016). Effects of Housing First on Employment and Income of Homeless Individuals: results of a Randomized Trial. *Psychiatric services (washington, and D.C.)*, 67, pp.603-609.

Richter, D., & Hoffmann, H. (2017). Independent housing and support for people with severe mental illness: systematic review. *Acta Psychiatrica Scandinavica*, 136(3), 269-279. https://doi.org/10.1111/acps.12765

Salanti, G., Ades, A. E., & Ioannidis, J. P. (2011). Graphical methods and numerical summaries for presenting results from multiple-treatment meta-analysis: an overview and tutorial. *Journal of clinical epidemiology*, 64(2), 163-171. https://doi.org/10.1016/j.jclinepi.2010.03.016

Tsemberis, S., & Eisenberg, R. F. (2000). Pathways to housing: Supported housing for street-dwelling homeless individuals with psychiatric disabilities. *Psychiatric services*, 51(4), 487-493. https://doi.org/10.1176/appi.ps.51.4.487

Woodhall-Melnik, J. R., & Dunn, J. R. (2016). A systematic review of outcomes associated with participation in Housing First programs. *Housing Studies*, 31(3), 287-304. https://doi.org/10.1080/02673037.2015.1080816

White H, Saran A, Teixeira L, Fitzpatrick S, Portes A. (2018). *An evidence and gap map of effectiveness studies for those affected by and at risk of homelessness in high-income countries.* (Unpublished study protocol). Campbell Collaboration, Oslo.

Review authors

Lead review author:

Name: Ciara Keenan
Title: Dr.
Affiliation: Campbell UK and Ireland / Centre for Evidence and Social Innovation
Address: University Rd, Belfast
City, State, Province or County: Belfast
Post code: BT7 1NN
Country: Northern Ireland
Phone: 028 9024 5133
Email: c.keenan@qub.ac.uk

Co-authors:

Name: Sarah Miller
Title: Dr.
Affiliation: Campbell UK and Ireland / Centre for Evidence and Social Innovation
Address: University Rd, Belfast
City, State, Province or County: Belfast
Post code: BT7 1NN
Country: Northern Ireland
Phone: 028 9024 5133
Email: s.j.miller@qub.ac.uk

Name: Jennifer Hanratty
Title: Dr.
Affiliation: Campbell UK and Ireland / Centre for Evidence and Social Innovation
Address: University Rd, Belfast
City, State, Province or County: Belfast
Post code: BT7 1NN
Country: Northern Ireland
Phone: 028 9024 5133

Roles and responsibilities

The review will be undertaken by systematic review specialists within the Campbell UK & Ireland Centre. Dr Sarah Miller will be the Principal Investigator (PI) of the project and will have overall responsibility for its conduct and delivery. Dr Ciara Keenan will be responsible for the day to day operation of the review. This review will be supported by specialist input from Professor Terri Pigott and Dr Jennifer Hanratty alongside research support from two full time research assistants.

Dr Ciara Keenan has acquired six years' experience working across 15 systematic reviews. Ciara is co-convenor of Campbell's Information Scientist Network; methods editor for Campbell's Education Coordinating Group; and founder and editor of the meta-evidence blog.

Dr Sarah Miller is the Deputy Director of Campbell UK & Ireland. She is co-chair and co-editor of the Campbell Education Coordinating Group and also Deputy Director of the Centre for Evidence and Social Innovation, within which she leads the What Works in Schools programme of research. She has considerable methodological and statistical expertise, which includes the conduct and analysis of randomised controlled trials as well as systematic reviews and meta-analyses.

Dr Jennifer Hanratty has worked in evidence synthesis since 2012 and published reviews with Campbell, Cochrane and NIHR Health Technology Assessment amongst others. Jennifer is associate Editor with Campbell Education Co-ordinating group, on the editorial board of the Campbell Knowledge Translation and Implementation Group, and represents Campbell UK & Ireland on the advisory board for Evidence Synthesis Ireland.

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Potential conflicts of interest

No conflict of interest.

Preliminary timeframe

- Date you plan to submit a draft protocol: 31 Jan 2019
- Date you plan to submit a draft review: 27 Sep 2019