Supplementary file 8: Detailed summary of barriers identified

**Individual & lifestyle factors**

**Relaxation, stress and mood management**

Forty qualitative studies identified stress management as a significant barrier to smoking cessation (50-56, 58, 59, 61-63, 65, 67-69, 72, 74, 75, 80, 81, 83, 84, 86, 87, 89, 90, 92, 93, 95-97, 99, 100, 103, 105, 108, 110-112). Smoking was used as a coping mechanism (52, 58, 62-65, 69, 74, 89, 90, 92, 97, 99) in reaction to daily stressors as well as the stress inherent in disadvantaged lives. Three quantitative studies reported stress management as a barrier to quitting with Maori participants (48%) (79), participants with substance use disorders (39%) (104) and homeless participants (44%) (107). Of note, participants in two studies reported that smoking also directly contributed to the stress experienced by participants (51, 111).

Participants also reported using smoking to manage their emotions and mood (58, 65, 72, 83, 84, 90, 93, 98, 103, 113). Twenty three percent of participants from a Maori sample indicated managing emotions was a barrier to quitting (79), 42% of individuals with a substance use disorder (101).

**Enjoyment of smoking**

Across 22 studies, smoking was described as an enjoyable activity (50, 55, 56, 59, 62, 63, 65, 67, 79, 81-83, 88-90, 92-94, 97, 98, 105, 111). In quantitative studies, proportions of participants who said enjoyment prevented them from quitting ranged from 25% (79) to 47.2% (88). Smoking was viewed as an affordable, rewarding luxury (50, 55, 63, 79, 93, 97) and the only pleasurable activity some participants had (50, 56, 59, 62, 65).

**Physical addiction to nicotine**

Addiction to nicotine was reported as a barrier in 15 qualitative studies (49, 50, 54, 59, 67-69, 72, 74, 75, 81, 83, 84, 91, 92) (103) and four quantitative studies (60, 79, 90, 100).

Proportions of individuals who reported addiction to nicotine as a barrier ranged from 33% (100) to 86% (60). The experience of withdrawal symptoms was a barrier to quitting in nine studies (54, 57, 69, 72, 74, 80, 84, 90, 98). Management of cravings was a barrier in ten qualitative studies (49, 54, 68, 69, 72, 80, 84, 86, 90, 98) and one quantitative study (107) where 50% of homeless participants cited cravings as a barrier to cessation. Withdrawal symptoms were especially a barrier for individuals with substance use disorder, with 87% feeling tense or irritable if they quit smoking, and 48% saying their cravings would be so strong they couldn’t stand it (101).

**Behavioural habit of smoking**
Five quantitative studies (60, 79, 88, 90, 100) and ten qualitative studies (50, 57, 65, 68, 75, 80, 83, 84, 92, 105) reported habit as a barrier to smoking. Proportions of participants who endorsed habit as a barrier ranged from 19% to 58% in studies carried out with people with a mental illness (88, 90, 100); 82% in a low income sample (60) and 73% in a study conducted with Maori participants (79).

**Perceived mental health benefits of smoking**

Smoking in order to manage the symptoms of mental illness was identified in the majority of studies carried out with participants with a mental illness (88-98, 102) as well as managing the side effects from medications (92, 94, 98). Smoking in order to protect mental health was also found in one study conducted with low income pregnant women (67). In two community surveys a history of depression was reported as a barrier to smoking cessation (58, 74). Participants with mental illness in two studies perceived that the benefits of continuing to smoke far outweighed the potential risks of stopping, which included relapse, rehospitalisation and suicidal thoughts (89, 98). A large portion (78%) of individual’s with substance use disorder would feel anxious if they tried to quit (101).

**Avoidance of weight gain**

Fourteen studies reported that smoking was used in weight management, and that potential weight gain was a barrier to quitting (29, 49, 52-54, 64, 67, 72, 74, 84, 91, 98, 101, 107). Twenty percent of homeless participants endorsed weight gain as a barrier to quitting (107) and in 20% of individual with substance use disorder (101). Smoking was also used to suppress appetite for individuals diagnosed with an eating disorder (91) and for low income pregnant women (67).

**Competing priorities and needs**

Competing needs, including finding shelter or food for those who were homeless (108); addressing mental health issues (89, 98); or addressing other physical illnesses (56, 74, 99) often meant that smoking cessation was not a priority for participants or those involved in their care in ten studies (56, 63, 74, 75, 87, 89, 91, 98, 99, 108).

**Rationalisations to continue smoking**

Lack of acknowledgement of the health-related harm of tobacco use was reported in eight studies (56, 58, 67, 74, 82, 87, 89, 97). Rationalisations to continue smoking were also reported in ten studies (54, 55, 58, 61, 67, 74, 78, 82, 89, 97) and included the belief that smoking certain brands/strengths of cigarettes meant a lower likelihood of developing cancer (82); not experiencing any signs or symptoms of smoking related illness at the present time (54, 58); fatalistic beliefs (56); providing examples of relatives or other persons who are
smokers and who are healthy (80, 87); and the experience of disadvantage as a protective factor against developing smoking related illness (89).

**Other substance use**

Participants identified associations between smoking and other behaviours in eight studies including alcohol use (49, 74, 76, 80, 84, 112) cannabis and caffeine (49, 81, 112). Approximately one third (34%) of Maori participants identified alcohol use as a barrier to quitting smoking (79). Smoking was used to manage other addictions and prevent relapse (59, 89, 103). Alternatives to smoking included drug use, relapse to alcohol addiction and losing control; all of which were unacceptable to participants (56, 62, 89). For 41% of those diagnosed with a substance use disorder, quitting would make it harder to remain sober and 13% wouldn’t be able to control their cravings for other substances if they quit smoking (101).

**Sense of autonomy**

Participants across seven studies reported that smoking provided a sense of autonomy, control (56, 58, 68, 83, 93, 97, 98) and power (99) over lives that were often chaotic and out of control. On the other hand, participants with mental illness identified the lack of control they had over smoking as a barrier to quitting (102).

**Low confidence and perceived difficulty of quitting**

Low self-efficacy (52, 93, 106, 107) and low confidence (92, 97, 112) was reported in seven studies. The belief that willpower was the single-most important factor needed to successfully quit was reported in five studies (51, 52, 64, 67, 69). Participants also reported that the process of quitting smoking was too hard (52, 80, 96, 98), including 73.5% of prisoners and ex-prisoners surveyed (109) and 58% of individuals with a substance use disorder (101). Smokers with depression reported it was hopeless to try to quit (102). However, the opposite was reported by a sample of former miners, who maintained they were able to stop smoking at will, with minimal difficulty and need for support (71). Twenty five percent of individuals with substance abuse disorder said they did not know how to quit (101).

**Perceived cognitive benefits of smoking**

Enhanced concentration and other cognitive benefits associated with smoking were reported in six studies (51, 83, 90, 93-95), including 56% of individuals with a substance use disorder (101).

**Combatting loneliness**

Smoking provided a way of reducing loneliness in six studies (52, 59, 65, 93, 97, 98); providing companionship (93) and was described as a friend (52, 98) by participants.
**Perceived low individual risk of harm**

Whilst most of the studies reported that participants had good knowledge of the health risks associated with smoking, low levels of knowledge about the risks of smoking were identified as barriers to cessation (58, 87, 95, 97) including one study conducted with pregnant women (58) and two studies conducted with Indigenous Australian pregnant women (80, 87). Low knowledge of the risks of smoking whilst pregnant were also identified (58, 87). In a study conducted with former miners, participants were more likely to attribute their current health issues to coal dust exposure, rather than smoking. Additionally, participants rationalised continuing smoking by weighing the risks of smoking in comparison to the risks of coal mining (71).

**Low motivation**

Low levels of motivation to quit smoking were reported in four studies, all of which were carried out with participants who were diagnosed with a mental illness (92, 94, 97, 98). Additionally, 38% of individuals from a low income areas (70) and 47% of individuals diagnosed with a substance use disorder (101) also reported low levels of motivation to quit.

**Failed past quit attempts**

Past failed attempts to quit smoking were identified as barriers to future attempts in two qualitative studies (61, 74) as was a sense of hopelessness after trying many methods and remaining unsuccessful (87).

**Positive smoker image**

Two studies within low income samples reported associations between smoking and perceptions of being cool and sophisticated (29, 57) and one study with persons with a mental illness found that participants believed that non-smokers do not have as much fun as smokers (97). In a sample of young people with mental illness, positive media images were also reported as barriers to quitting (103).

**Social and community networks**

**High prevalence and acceptability of smoking in community**

Eight qualitative (53, 54, 69, 75, 79, 80, 98, 111) and four quantitative (60, 101, 107, 109) studies found that being around other smokers was a barrier to quitting. This finding is compounded by participants describing the high prevalence of smoking amongst family and friends in 23 studies (29, 51, 52, 56, 62, 68, 69, 72, 74, 76, 81, 83, 85-87, 90, 93, 95, 96, 103, 105, 111, 112) and in the wider community in 18 studies (29, 51, 52, 56, 62, 66, 69, 72, 74, 76, 81, 83, 85-87, 93, 96, 112). Tobacco was readily available and easily accessible within disadvantaged communities (51, 62, 66, 76, 83, 90, 91, 111) and smoking was considered to
be a highly acceptable (29, 79, 81-83, 85-87) and normalised behaviour (52, 56, 62, 66, 69, 79, 81-83, 85, 87).

**Lack of social support**

A lack of social support to quit smoking was reported in 12 studies (29, 56, 58, 64, 67, 68, 75, 79, 84, 98, 107, 108) and a lack of support from family and friends in particular was a barrier in 14 qualitative studies (49, 54, 55, 58, 69, 74, 75, 77, 79, 83, 84, 87, 91, 94). In one quantitative study, only 21% of homeless individuals agreed that close friends or family would be helpful in quitting smoking and only 29% believed that close friends and family wanted them to quit very much (106). Similarly, 26% of homeless respondents cited a lack of support during a quit attempt as a barrier to successfully quit (107).

**Smoking as a social activity**

Tobacco use and socialising were linked in two quantitative studies (88, 100) and 20 qualitative studies (29, 49, 53, 57, 62, 73-75, 79, 80, 85, 87, 89, 90, 92, 93, 95, 97, 98, 103): where participants reported that using tobacco helped to facilitate social connections amongst family, friends and strangers.

**Lack of health and other professional support to quit**

Thirteen qualitative studies (52, 55, 56, 58, 74, 77, 83, 86, 91, 92, 95, 108, 112) and one quantitative study (109) reported a perceived lack of support from health professionals regarding smoking cessation. Cases of family members and health professionals actively discouraging quit attempts and encouraging maintenance of smoking due to concerns about the individual’s mental health (92, 93, 95, 96, 112) or because smoking was perceived to be the individual’s only source of enjoyment (54, 77, 79, 83) were reported. Three studies identified tobacco use by health professionals and others involved in the participants’ care as a barrier to cessation (77, 95, 109) and one study reported service staff providing cigarettes to homeless clients as a barrier (112). Over half (55.9%) of prisoners surveyed reported observing members of staff smoking as a barrier to quitting (109). Participants also reported that cigarettes were used as a way to reward or punish behaviour by health professionals and other service providers (93, 95, 96, 110). Twenty-nine percent of prisoners also indicated that not receiving cessation support from prison staff prevented them from quitting smoking (109). Twenty-six percent of substance abusing individuals reported they did not have enough support to quit. The study involving at risk youth identified mixed messages sent by those in places of authority (for example teachers, members of the police force) also acted as a barrier for at risk youth (111).
Living and working conditions

Access to resources to quit
Thirteen studies cited the cost of Nicotine Replacement Therapy (NRT) and other pharmacological interventions as a barrier to access that directly prevented cessation (52, 55, 61, 68, 69, 73, 74, 78, 81, 93, 96, 98, 108). Cost was also a barrier for 40% of participants diagnosed with substance abuse disorder (101). There was also poor knowledge and low uptake of programs available to participants (52, 56, 61-63, 72, 74, 78, 86, 96, 108, 110). Social and geographical isolation were reported in four studies as barriers to quitting (56, 62, 64, 85). Geographical isolation referred to the lack of access to cessation services that rural and remote communities experience. Social isolation referred to the racial and economic segregation that separates disadvantaged neighbourhoods and individuals from others (56) further contributing to differences in perceived acceptability and prevalence of tobacco use (62, 85). Unsafe neighbourhoods also limited unnecessary outings and inhibited accessing smoking cessation support (56).

Boredom and limited structure in day to day life
Fourteen qualitative studies (50-52, 54, 55, 65, 75, 86, 94, 95, 97, 99, 108, 110) and four quantitative studies (60, 79, 88, 90) indicated that smoking alleviated boredom. Limited opportunities for leisure and high levels of unemployment often meant that participants had large amounts of free time and smoking was used to mark the transition from one task or part of the day to another (56, 59, 93, 97, 102, 108).

Concerns regarding cessation treatment and services
Ten qualitative studies reported that participants were reluctant to access psychological or pharmacological resources to quit smoking due to a belief that these treatments were largely ineffective (56, 58, 61-63, 69, 72, 80, 81, 97). In one survey almost a third (31%) of homeless participants reported that no existing pharmacological treatments would be able to help them stop smoking (107).

The possible side effects of pharmacological interventions (50, 73, 78, 81, 105, 108), uncertainty about the correct use of pharmacological interventions (52, 81, 108); or the possible interactions between NRT and other medications (108) presented barriers to cessation. Participants in one study reported reluctance to add NRT on top of the medications they were already using (105). Homeless participants in one study expressed concerns about the possibility of becoming addicted to NRT (108). Concerns about existing treatment services included lack of continuity of care (91); being capable of addressing smoking simultaneously with mental health issues (91, 93, 96); cultural appropriateness (74, 77, 78,
feeling judged by programs (61, 67, 91, 93) and a cynicism regarding the medical profession (77). Telephone quitlines were not viewed as culturally appropriate resources (77) and participants were sceptical of the effectiveness of quitline support (52).

**Stressful factors**

Participants across ten studies (56, 58, 59, 62, 63, 65, 68, 74, 75, 85) reported that increased stress due to the events and life circumstances intrinsically linked to their socioeconomic position were barriers to quitting smoking. The following situations compounded feelings of stress, hopelessness and meant that cessation was not prioritised: unemployment (56, 58, 59, 62, 63, 65, 68, 85); poverty and financial stress (62, 65, 75, 85); housing issues including substandard housing, homelessness and overcrowding (56, 58, 75, 85); violence and crime (56, 62, 68, 75); drug use (56, 62, 75); increased morbidity and mortality (68, 74, 75, 85); chronic disease (74, 75); low education (65, 75); and limited recreational activities (62, 65).

Two studies carried out with Indigenous Australians found that additional stressors experienced by this group included racism, stigma, dispossession of traditional lands, high burden of illness, premature deaths within the community and collective grief and loss relating to the Stolen Generation and the removal of children (74, 75, 85). Unique stressors facing prisoners including; transfers within and across prisons; legal matters; bullying; missing family; and restricted movement for most of the day were also identified (110).

**Living and working environments**

Participants reported lack of control over exposure to smoking due to others smoking in the home; a lack of smoke free policies or policies that did not cover the whole environment or were only partially enforced were barriers to quitting smoking (54, 58, 74, 96, 103, 107). In one study involving prisoners, 59% of participants reported that the ‘smoky atmosphere’ within the prison was a barrier to quitting (109). Work environments that were conducive to smoking also presented a barrier in one study (29).

**Cultural, socioeconomic and environmental factors**

**Cultural norms**

The importance of tobacco use in traditional and ceremonial contexts was expressed in three studies concerning American Indian participants (72, 73, 82) and one study including Aboriginal and Torres Strait Islander participants (85) and one study including Alaska Native participants (86). Cultural values of self-reliance, pride and independence prevented American Indian participants from seeking cessation support in two studies (81, 82) and in one study with low income African Americans (56). Historical factors including dispossession of land, colonisation and collective grief and loss of cultural identity were
reported as barriers to cessation in three studies of Aboriginal and Torres Strait Islanders (74, 75, 85). Studies carried out with American Indian participants (73, 82) and Aboriginal and Torres Strait Islanders (74, 75, 83, 85) highlighted the function of smoking as a way of maintaining cultural identity and belonging. Maintenance of identity and belonging were also reported in three studies concerning people with a mental illness (93, 94, 98) and one study carried out with low income participants in the UK (62). In prison settings, use of cigarettes as a substitute currency also provided a barrier to cessation (110).

**Socioeconomic factors**

Two qualitative studies reported participants linking their status as smokers and their inability to quit smoking with their lower socioeconomic position (65, 97). In a study conducted with people with a mental illness, participants endorsed the belief that non-smokers were able to refrain from becoming smokers because they were more advantaged (97) and in a study of low income women, participants referred to their low socioeconomic position and poverty as a barrier to quitting smoking (65).